THE
Scots Gard'ner
In Two Parts.

The Firſt of Contriving and Planting
GARDENS, ORCHARDS,
AVENUES and GROVES:
WITH
New and profitable Ways of Levelling,
and how to Meaſure and Divide LAND.
THE SECOND,
Of the Propagation and Improvement of
FORREST and FRUIT-TREES,
KITCHEN-HERBS, ROOTS and
FRUITS: With ſome PHYSICK-
HERBS, SHRUBS and FLOWERS.
WITH AN
APPENDIX,
SHEWING
How to Uſe the Fruits of the Garden.
Whereunto is annexed
The Gard'ners Calender.

Publiſhed for the Climate of *Scotland*
By *JOHN REID* Gard'ner.

The Second Edition Corrected, with Additions.

EDINBURGH,
Printed by *JOHN MONCUR*, and Sold at his Printing-Houſe,
oppoſite to the Head of *Foſter's* Wynd, at the *Scots* Arms; and
by moſt Bookſellers in *Edinburgh* and *Glaſgow*. MDCCXXI.

BRITISH MUSEUM

TO
All Ingenious PLANTERS
IN
SCOTLAND.

I Deſire you to peruſe this Book; for there are many Things in it of ſingular Uſe, which I could never find in any, and the Subſtance of what I could find material (in the Practical Part of *Gard'nery*) improven and applied home: Whereby I preſume it may be ſatisfactory to you, when you operate in the Choice of Husbandry. Several weighty Reaſons induced me hereunto; as, The great Neceſſity of right

Contrivance, whereby you may do your Works, both orderly and cheap; The inexpreſſible Need of Incloſing and Planting, whereby you may improve your Eſtates to the beſt Advantage, both in Profit and Pleaſure. And becauſe the many Books on *Gard'nery* are for other Countries and Climates, and many Things in them more Speculative than Practical, this enſuing Treatiſe may the rather be acceptable; albeit obnoxious to the undoubted Cenſure of Criticks, yet when I reflect on my Innocency in the Deſign therein, (the Good of my Country) I receive Encouragement. And that my Endeavours may prove ſucceſsful, is the earneſt Deſire of,

John Reid.

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The Firſt PART.

Treating of CONTRIVANCE.

CHAP. I.

How to make the Works about a Houſe Regular.

A FIRST and a Second Part I thought neceſſary, that I might diſcuſs Things in their Order: For a Houſe muſt be built before it be furniſhed. Theſe who inclines not to read this, may ſtep forward to the Second, perhaps there, they will find Satisfaction; albeit others may be as deſirous of this who have any Works to make.

My Deſign, by Contrivance, is to prevent the Conſequence of Inadvertency, or the abrupt Procedure in Incloſing and Planting.

2. Here, in the Entrance, you may take a View of a Houſe which I have invented, [ſee *Fig.* 1.] it is but little, yet very commodious and cheap. There is only 4 Rooms on a Floor, (you may have Cloſets within the Wall although not here demonſtrated) all which enter off the Stair, (yet Communication betwixt) and the Door is in the Middle, and there is 10 Steps up to the firſt Story, (which is the Hall or Dining-Room, Withdrawing-Room, Bed-Chamber and Waiting-Room) and 10 Steps down to the lower Story, which is half under Ground, and vaulted; this is Kitchen, Cellars and Ladners, *&c.* That above the Dining-Room-Story, may be Bed-Chambers, Library and Withdrawing-Room: And above theſe, Garrets for Wardrops. The Roof may be in three, ſo as the middle Part may be flat and covered with Lead, and the two Sides more ſteep and ſlated. There is alſo a Stair coming down from the Hall without, to the Paterre of Graſs and Gravel, on whoſe Corners are two Pavilions, opening without the Line of the Houſe, and ſets off in Place of Jams; one of which may be a Store Houſe, and the other a Dove-Houſe. The Stables, Baking and Brewing-Houſe, are on the oppoſite Side, moſt conveniently placed, as hereafter I ſhall demonſtrate.

3. Situate your Houſe in a healthy Soil, near to a freſh Spring, defended from the impetuous Weſt Winds, Northern Colds, and Eaſtern Blaſts: And mind Regularity. *viz.*

Make all the Buildings and Plantings ly ſo about the Houſe, as that the Houſe may be the Centre; all the Walks, Trees and Hedges running to the Houſe.

As the Sun is the Centre of this World, as the Heart of the Man is the Centre of the Man, as the Noſe the Centre of the Face; and as it is unſeemly to ſee a Man wanting a Leg, an Arm, *&c.* or his Noſe ſtanding at one Side the Face, or not ſtreight, or wanting a Cheek, an Eye, an Ear, or with one (or all of them) great at one Side, and ſmall on the other: juſt ſo with the Houſe-Courts, Avenues, Gardens, Orchards, *&c.* where Regularity or Uniformity is not obſerved.

Therefore, whatever you have on the one Hand, make as much, and of the ſame Form, and in the ſame Place, on the other.

4. But if you would work right, begin orderly, that is, find the central Line by erecting a Perpendicular on the Middle of the Houſe-Front, to extend as far, both back and fore, as requiſite: Hence you may draw Parallels, meaſure and ſtake out your Avenues, Gardens, *&c.* as you pleaſe; ever minding to meaſure alike at both Sides of the central Line. How to find this central Line, and to ſet off Parallels, is taught in *Chap.* III. *Sect.* 1, and 2.

5. Yet, for further Illuſtration, take an Example by a Draught of my own inventing, [ſee *Fig.* 2.] which, if rightly underſtood, may be applied diverſly, and improven elegantly.

It is here in a ſmall Scale, the Houſe is in the Centre, and at B; round by the Houſe is Balleſters; the common Avenue is by N, and ends in a Triangle; C, is the Outer-Court, and in the two triangular Courts marked with O, are placed the Office-Houſes moſt notably, (with their Back Part to the Court C) opening without the Line of the Houſe; ſo diſmounting at the Gate of the Court, (through which you may walk on Foot to the Houſe) let the Horſes be taken about to the Stables, by the Way the ending of the Avenue leads. The two Plots P, may be Ponds; the two with G, *Cherry Gardens*; a proper Place alſo for *Goosberries*, *Currants* and *Strawberries*. On the South Side the Houſe, there is the *Pleaſure* or *Flower-Garden*, called the *Parterre*; at the two Sides thereof *Kitchen Gardens*, marked with K; then another Walk ending in a Semicircle at S, leading out to the Lawn or Deer Park. The *Viſteas*, or Walks of View, that runs from the 4 Angles of the Houſe, are very pleaſant and convenient, and are good Shelter; for which Cauſe there are two Thickets on the North Side marked with T; on the South Side are two ſuch marked A, for Nurſeries; and at E. and W. are two Orchards. The whole is environed with two

Rows of Forreſt Trees without the Wall: And if the Paper were large, I would ſhew you, that the Park Wall ſhould be parallel to theſe; that is, every where equidiſtant from the Houſe its Centre, at leaſt the whole an *Octagon* near to a regular *Polygon*, conſiſting of equal Sides and Angles. The Walks with their Fences (being run foreward from all the 4 Sides and 4 Angles of the Houſe, till they touch at the Middle of each Side of the Park Wall) ſerves in the Park for Diviſors; which Diviſors may be *Hawthorn* Hedges, and theſe in the Gardens *Holly*, except the Court in the Entry, and Office-Houſe Courts, methinks Walls are requiſite there. Alſo there ſhould be an Aſcent to the Houſe, (if poſſible) as at the firſt Court Gate 2 Steps, at the ſecond 4 Steps, *&c.* But leaving it to let every Man apply as his Ground and Ability will beſt admit, I come to ſpeak of Regularity, where confined.

6. But as to work, or make Regularity among Confinements, requires Ingenuity; ſo is there Difficulty in teaching the ſame, becauſe of the great Variety of Places; and being that I know not how to give Precepts for it (except what is ſaid above of the Centre and central Line) therefore I ſhall only inſtance one by Example.

As where I was confined, to add what I will, but to diminiſh none, I viewed the Works, and found ſeveral regular and irregular Things done on the one Side the Houſe, and nothing on the other anſwerable; therefore I ſtaked out the ſame on the other; ſtill where I found an irregular Piece on the one Side, I ſtaked out the very ſame on the other; and thus two Irregularities produced one Uniformity.

Or where there had been much wrought for an Avenue, but did not front the Houſe right, by Reaſon of a Precipice on the Weſt Hand, I got on the Houſe top, viewed the Ground, immediately ſaw that I might turn my Face towards the Eaſt, and get ſtately Avenues, with Gardens on each Hand at Pleaſure, and the ſaid Precipice turned at my Back.

But to draw any Place firſt on Paper, as they ſtand, we ſee Faults plainly, and how to help them accordingly: Therefore to aſſiſt you further in making your Works orderly, I ſhall ſhew you in the following *Chap.*

C H A P. II.

How to Draw by the Scale.

ALL Draughts not drawn by the Scale are but Suppoſitions; the Scale makes them ſtand directly on Paper as on Ground, or would ſtand, if upon it; therefore in ſingular Uſe of contriving, you ſhould have an Eye to the Conſequence of all your Undertakings, leſt you run inadvertantly into a Snare; for when you have determined or ſettled on the Contrivance, perhaps hath gone a great Length in working the ſame, yet as you proceed (one Thing making Way for another) you may come to ſee a far better Way, and ſo to overturn moſt, or all that is done, to get your new and better Way accompliſhed; which obliges you either to double Pains and Charges, or otherwiſe in ſaving the ſame, to ſit ſtill with a diſſatisfied Mind; all which may be eaſily and timely prevented by drawing and projecting on Paper, as is ſaid.

2. You may make as many Scales as you think will be needful, inſomuch that when you have a Draught at any Time to draw, you have no more to do, but by Arithmetick find which of them Scales you muſt draw it by. Therefore make a thin broad Rule 2 Foot long, *Pear* or *Apple-tree*, *Red* or *Plumb-tree*, *Plane-tree*, *Box-wood*, or *Braſs*, which is beſt; put as many on both Sides as it will contain. I make moſt uſe of a Diagonal Scale, [ſee *Fig.* 3.] 'tis done by dividing the Inch into ſo many equal Parts, as 8 in the Inch, 30 in the Inch, 100 or 200 in the Inch, the Figure and Multiplication will inform you, for 5 Diviſions drawn the Length of the Rule, and 7 in the Inch; the other Way is a Scale of 35 in the Inch, 5 times 7 is 35, and ſo forth. If your Rule be 2 Foot, there may be

two Lengths on it, or as your largeſt Compaſs may conveniently reach. You may alſo make ſome of the common Scales, that is, divide the Inch the ordinary Way in a ſtraight Line into ſo many equal Parts, [ſee *Fig.* 4,] ſeeing the Diagonals hath only ſuch as Multiplication produceth.

3. If you be to draw a Draught, but knows not how to take your Meaſures from the Scale, then if you know the Meaſures on the Ground, take ſo many Diviſions (off the Scale with your Compaſſes) as you had Feet, Ells or Falls, (whatever you meaſure by) and ſet on the Paper. Example, if you were to draw an Orchard, whoſe Length is 680 Ells, by a Scale of 200 in the Inch, [as the upper End of *Fig.* 3.] you are to conſider how many times 200 is in 680, that ſo many whole Inches you may take on your Compaſſes, and the Odds or Fraction you may get therewith from the ſubdivided Inch. Here, if you ſet one Foot of the Compaſſes at 6, and reach the other to *a*, which 6 half Inches is 600, and 8 Diviſions foreward on the ſubdivided half Inch is 80; the ſame you may place on the Paper, and draw accordingly. Example 2d, By the other Scale of a 100 in the Inch, if you would ſet the Breadth of 23 Foot-walk on Paper; here it is not one Inch, therefore you muſt take but ſuch a Part of one Inch, *viz.* ſet the Compaſſes from *a*, at the End of the ſubdivided half Inch to *o* in the ſame, and thus it is on the

Compaſſes; therefore do as before. You may perceive that the 23 Diviſions on the Rule is the 3 from 20 foreward on the Line betwixt 20 and 30, where the *o* is placed to make it plain. If your Draught be ſo large that your Compaſſes cannot reach its Length, then you may divide the ſame by 2, 3, or 4, *&c.* and take the Product on the Compaſſes, and ſet alongſt ſo many times as was your Diviſor. This is ſo plain that it needs no Example.

4. But if you have a Draught to draw on one or many Sheets of Paper, and you deſire to draw it as large as the Paper will bear, not to go off; then take the Length of your Paper in Inches, by which divide the Length of your Ground, whether Feet, Ells, *&c.* and the Quotient ſhall be the Scale you muſt draw it by; that is, an Inch divided into ſo many equal Parts. Example, if you have a Plot 360 Foot in Length, to draw on a Sheet of common Paper 16 Inches; but to make it keep a little within the Paper, at each End call it 15 Inches; ſo 360 the Length of the Ground divided by 15 the Length of the Paper gives 24; therefore take a Scale of 24 in the Inch, and draw it by the ſame. Example 2d, the Breadth of a Field 864 Falls, I deſire to draw it on the $\frac{1}{5}$ of a Sheet, *viz.* 3 Inches; divide 864 by 3, it gives 288: But this being too ſmall, I take the $\frac{1}{2}$ thereof, *viz.* 144, and draws it by the ſame, minding that each Diviſion on my Paper is 2 Falls on Ground.

5. Or if you had a Draught, and knows not what Scale it was drawn by, if you know what Ground it contains; the Work is, Firſt to meaſure it by a ſuppoſed Scale; and, Secondly, to find a Mean proportional betwixt the true Quantity of Acres, and that Quantity found by the ſuppoſed Scale; and, Thirdly, by the Golden Rule ſay, as the Quantity of Acres found by the ſuppoſed Scale is to the Mean proportional, ſo is the ſuppoſed Scale to the true Scale. *Example*, If you have a Plot or Field of Ground containing 72 Acres, and you meaſure it by a Scale of 18 Falls in the Inch, and that makes but $40\frac{1}{2}$ Acres; the Queſtion is, What Scale was it drawn by? You will find the Mean proportional betwixt 40. 5. and 72 to be 54, [as in *Chap.* VIII. *Sect.* 6.] and as 40. 5. is to 54, ſo is 18 to 24. Thus it appears that the ſaid Plot was drawn by a Scale of 24 Falls in the Inch.

Example 2d, If you have a Plot containing 14 Acres, 64 Falls, and meaſuring it by a Scale of 40 in the Inch, makes 90 Acres, What Scale was it drawn by? You will find (as is ſaid) the Mean betwixt 14. 4. and 90 to be 36; therefore as 90, the Acres found by the ſuppoſed Scale, is to 36, the Mean proportional, ſo is 40 the ſuppoſed Scale to 16 the true Scale. This tells that it was drawn by a Scale of 16 in the Inch.

6. But if you have a Draught, and knows not what Scale it was drawn by, nor what

Ground it contains, ſo as thereby you might find its Scale, and you deſire to diminiſh or enlarge the ſame on Paper, and yet that it may bear the ſame Shape and Proportion in every Reſpect.

You may divide or multiply every particular Line or Part of it, as if you would have it $\frac{1}{3}$ leſs, then divide each Part by 3, and take one of theſe, and ſet on the Paper. Or if you would have it twice as large, then double every Part and Portion of it, that is, take the Double of each Length and Breadth on the Compaſſes, and ſet on the Paper, and draw accordingly.

But if your Draught be a Talliduce, Maps, or the like, draw a Square by the outer Edge thereof, and divide each Side into ſo many equal Parts as you think fit, betwixt which draw parallel Lines all through, croſſing from oppoſite Sides, and notice what Part of your Draught falls within the Precinct of each little Square, and ſo copy it upon another Paper, whether larger or leſſer, as if you would have it one Fifth leſs, take one Fifth of the Side of one of the little Squares, and therewith lottry or ſquare your clean Paper, And likewiſe take one Fifth of Length and Breadth of each Particular within each little Square, and the one Fifth Diſtance, that ſuch and ſuch Parts, Creeks and Angles, are diſtant from any two of the Angles of the ſame; and ſo place them accordingly in the leſſer little Squares of your clean Paper.

7. When you deſign to ſurvey any Plot of Ground, be careful in meaſuring the Diſtances truly, and keep exact Account thereof. You may make firſt a ſuppoſed Figure on a Paper before you begin, that thereon you may write your Meaſures as you go along; as if it be a *Hexagon*, [ſee *Fig*. 27.] draw a Figure at Random containing ſix Sides, and having obſerved the Meridian on the Ground, (which you may either find by the Compaſſes, or let the central Line of the Houſe, its Perpendiculars or Parallels ſerve in lieu thereof) mark down ſuch on your ſuppoſed Figure; then let the two Men with the Chain begin at any Angle; the foremoſt may have 10 ſmall Sticks to thruſt in at every Length of the Chain, and let the hindermoſt Man gather them up as he comes along; and when all up, give them to his Aſſiſtant to begin again as before, calling that one Change, (ſtill being careful to go ſtraight betwixt the two Ends or Extreams) and when you come at the other End, count how many Changes, Chains and Links, as if the Hedge *c. d.* be 70 Falls, write that down as in the Figure, and ſo proceed to the reſt, obſerving the ſame Method.

8. But albeit you meaſure round any Plot or Field, yet you muſt know how to find the Quantity of the Angles, and protract the ſame; therefore I ſhall ſhew you the moſt exact

act of all others, and mechanical too. Example, by *Fig.* 21. When you have meaſured the Length of the 4 Sides of this *Trapezia*, (as is taught) then meaſure alſo betwixt any of the two oppoſite Angles, as from *c.* to *b.* or from *d.* to *a.* and then you may protract it only with your Scale thus, draw a given Line on the Paper as *a. c.* and from your Scale take ſo many Diviſions as was the Length of the Hedge *a. c.* and ſet thereon; and take the Length betwixt *c.* and *b.* on your Compaſſes; ſet one Foot in *c*, and deſcribe an obſcure Arch at *b.* alſo take the Length of *a. b.* and ſetting one Foot in *a*, make another Arch to croſs the former at *b*, then draw the Line *a. b*, likewiſe take the Length of the Side *b. d.* on the Compaſſes, ſet one Foot in *b.* deſcribe an obſcure Arch at *d.* and take the Length *c. d.* and with one Foot in *c.* croſs the former at *d.* then draw *c. d.* and *b. d.* and ſo have you finiſhed. By the ſame its eaſie to protract *Fig.* 26. and 27, or any other; and this is my Method of ſurveying.

6. As for the Dimenſions of Circles, ſee *Chap.* VIII. for having the *Radius*, you may eaſily find all Things belonging thereunto.

As for ſtraight lined Figures, if you reduce them into Triangles, and meaſure the three Sides of each, you may protract them, as is taught: Thus *Trigonometry*, or the Doctrine of plain Triangles ſhews, that having any three Things in a Triangle, we may find the other three, either by the Scale, or by Artificial Sines, *Tangents* and *Logarithems*; as having three Sides, or three Angles, or one Angle, and two Sides, or two Sides and one Angle, *&c.*

I will give you an Example by *Fig.* 20, ſuppoſe you would have the Diſtance between B. and A. Firſt Meaſure off from B, (at any Side moſt convenient) ſo many Ells or Falls, the more the better; I ſhall here ſuppoſe 384 Falls to C, (as will appear by a Scale of 400 in the Inch) and in ſetting it off, notice what Degrees that Angle makes by your Proreɑor, then hold the ſame at C, with its Chord Line on B. C. Turn about the *Index* till it point to A. notice what Degrees it cuts, as ſuppoſe 80, and write down; here you have the Side B. C. 384. the Angle A. B. C. 60. and the Angle B. C. A. 80. (and by Conſequence the Angle B. A. C. 40. being its the Complement to 180.) therefore go to your Paper, and draw a given Line as A. B. then open the Compaſſes to the *Radius* of your Line of Chords, and therewith ſetting one Foot in B. deſcribe the Arch D. E. I. O. likewiſe take 60 Degrees with your Compaſſes off the Line of Chords, and ſet from D. to E. on that Arch Line, and by the Point B. and E. draw the Line B. E. C. ſo ſhall the Angle A. B. C. contain 60 Degrees; but if the Angle had fallen to be more than 90 Degrees, then you may take it at twice, (ſeeing the ordinary Line of Chords has but 90) as if the *Index* had cut 120. firſt take 90 upon the Compaſſes, and ſet from D. to I. then take 30, and ſet from I. to O. which Angle A. B. O. contains 120 Degrees. But to return, as you ſet off the Angle at B. ſo likewiſe at the Angle C. make an Arch, and ſet off 80 Degrees thereon, by which Point and C. draw the Line C. A. *Laſtly*, Take the Line B. A. on your Compaſſes (*i. e.* betwixt the Point B. and the Point at A. where the Line C. A. did cut the Line B. A.) and apply to the ſame Scale of 400 in the Inch, from whence you took the 384, and you will find the Diſtance betwixt B. and A to be 588 Falls: For,

As the Sign of the Angle B. A. C. 40 Degrees	9:808067
is to the *Logarithm* of the Side B. C. 384 Falls;	584331
ſo is the Sign of the Angle B. C. A. 80 Degrees.	9:593351
The Sum of the 2d and 3d added	10:577682
The firſt Number to be ſubſtracted from this Sum	9:808067
To the *Logarithm* of the Side A. B. 588 Falls	769625

If you would know how to find the ſuperficial Content of any Plot of Ground, or how to divide the ſame, or to lay out any Quantity of Land in what Form ſoever, &c. ſee *Chap.* VIII. for I haſte to

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CHAP. III.

How to make Avenues *and* Walks.

ALL Walks ſhould front the Gates or Entries, whether they lead to a Houſe, Garden, Gate, Door, Park, Wood, or High-Way. When you have determined on the End of the *Walk*, as the Door of the Houſe, in the Middle thereof on the Line of the Houſe-Front, ſet off a Perpendicular to find the central Line, as aforeſaid, ſee *Chap.* I. *Sect.* 4. And for your more exact Performance thereof, prepare this Inſtrument, *viz.* take two ſtraight Rules about 3 or 4 Foot long, join them croſs ways in other, ſo that the 4 Angles where they cut may be exact Squares, then at each End of theſe, join a Piece Rule ſtanding up about 4 or 5 Inches, and in the exact Middle of each of theſe Pieces, make a Slit up and down, and in the Middle of theſe Slits, a Piece ſmall Silk Thread; theſe being ſtraight and perpendicular up, are excellent to view by; place this Croſs on the Head of the three footed Staff, hing a Plumb whereby you may plant it *Horizontale* upon Occaſion: On this you may alſo Place your Prorector with the Box and Needle, when you go to ſurveying, for every one has not a plain Table.

As to the Avenue, ſet one Side of your croſs Parellel to the given Line, (the Houſe-Wall) this you may do with moſt Eaſe, by taking one End thereof within the Door, till the Side touch the Door-Cheeks; and you may alſo view croſs by the Side-Wall, Back-ſight and Foreſight, till it ſtand exactly parallel thereto: Then turn, and ſtanding within the Door, view ſtraight out by the Silk Threeds, and ſo direct one to drive Stakes all along ſo far as you can ſee, in a ſtraight and perpendicular Line. You may alſo find this perpendicular central Line, tho' *Walls*, *Hedges*, *Houſes*, *Trees*, &c. obſtruct, if you can ſee over them out at any Window, or off the Battlement, if there be any, otherwiſe recur to the Rules in *Sect.* 3, and 4.

And as by this Inſtrument you may raiſe any Perpendicular, ſo by the ſame you may let a Perpendicular fall; for you may alter it hither and thither upon the given Line, till it direct to the Angle or Point aſſigned.

2. The mid or central Line of your *Avenue* being found out, you muſt place your croſs thereon, and thereby ſet off the Half Breadth thereof at each Side; do this at both Ends and Middle, that they be exactly parallel, and therein drive Stakes almoſt to the Head. And when you come to mark out for the Trees,

Trees, or to plant them, ſet a ſtraight Pole at each driven Stake for your Direction in going ſtraight betwixt the ſame.

If the Length of the *Walk* be confin'd, divide it by the Diſtance you mind to plant at; and if there be any odd, add or ſubſtract till all the Diſtances be equal; which Diſtance you muſt take on a Chain (for a Line will reach and ſhrink) and begin at one End, and go ſtraight to the other, thruſting in a ſmall Stake at each Length; minding to let both Rows go on *S*quare together, that is, one on each Side, and viewing will find the two, if there be four Rows, ſee the *Avenues* of *Fig.* 2.

And though the Ground be unevenly, yet you muſt hold the Chain level; wherefore you may have a Square and Plumb fixed at your Pole or Staff for your more exact Peformance thereof.

When you have ſtaked out the Ground, prepare the Rounding-ſtring, *viz.* A Piece of Line doubled and tied near the Point of a Stick, and ſo put the Double on the Stakes where the Trees muſt ſtand, and ſtretching the ſame, make a Scratch with the Point of the Stick round, and with a Spade follow that Compaſs and make the Hole. See the *Second Part* of this *Treatiſe*, where there are Directions how to prepare the Ground and plant.

If you obſerve what is ſaid, you may ſtake out any Kind of *Walk*, having one Line found; wherefore I ſhall ſhew you how to find out one Line whatever obſtruct.

3. As *Firſt*, ſuppoſe you would run a *Line* or *Walk* through a *Wood*, when you have concluded on the End thereof, there erect a Perpendicular as above, and run it as far into the Wood as you can; then at each Side thereof ſet off a parallel Line, two or three Foot from the central Line, or Half the Breadth of the intended Walk; ſo ſhall you have three parallel Lines running on in ſtraight Lines together. And where any one runs on a Tree, run foreward the other two, and ſet it off again (when paſt the Tree) as it was parallel to its Fellows; and ſo proceed till you be through the *Wood* or *Thickets*, ſtill marking the *Trees* that falls in the Interval to be cut.

A *Second* Way is by Means of *Lanthorns* with burning Candles, in a calm Night when dark, hanged on Stakes, you ſtanding in the *Wood*, may plant Stakes at Pleaſure, let the Candles furtheſt from you be higheſt, and remove forward the Lights as need requires.

4. But if both Ends of your *Walk* be determined, and you cannot ſee betwixt by Reaſon of *Lengths*, *Hills*, *Woods*, *Houſes*, or ſome ſuch Obſtruction; in ſuch a Caſe let two, having each a Pole, go to the Middle, or to ſuch a Place betwixt where they may (by looking Backſight and Foreſight) perceive the

two Extremes, (where ſhould be a Pole with white Paper on the Slip-Boards to make the better Appearance) turn your Faces towards other, ſtanding at a large Diſtance aſunder, but ſo as you may both ſee your reſpective Objects; and let A direct B to ſet the Pole in Line with his, and that at the North End; and B direct A to hold in Line with his, and that at the South End; ſo each directing other by Words or Signs, let both alter to and fro, till they have their Deſires at once; then ſhall theſe two, and the Extreams, be all four in a ſtraight Line, whereby you may ſet as many as you pleaſe. This Way I found out by Experiment, and thinks it worthy a Place amongſt the *Mathematicks*.

But if you cannot ſee the two Ends, when ſtanding in the Middle, although the Poles be never ſo high, then if it be *Wood* or *Hedges*, the foreſaid *Lanthorns* and Candles will do the Buſineſs.

But if the Obſtructions be *Hills*, *Walls* or *Houſes*, for which you cannot ſee, ſtanding in the Middle as aforeſaid, neither by *Lanthorns* nor yet by high Poles; then do by Parallels thus, ſet off a parallel Line ſo far, as that it may run quite beyond the Obſtruction, (on the Side moſt convenient) then ſet in the Parallel again at convenient Places; ſo ſhall both agree, and as will appear when the Obſtruction is removed.

But if none of theſe will do, run a Line over by gueſs, and if it miſs (as no Wonder) take Notice of your Error at the End, by letting a Perpendicular fall on the determined Point (by Means of the Square or Croſs) and the Meaſure betwixt finds out the Error: Then meaſure the Length of your intended Walk or Line aforeſaid, and at the Quarter thereof, ſet off the $\frac{1}{4}$ of your Error; at the Middle the $\frac{1}{2}$, and at the $\frac{3}{4}$ of the Length, ſet off the $\frac{3}{4}$ of your Error; this will lead you ſtraight upon your Purpoſe.

Trigonometry will alſo ſolve this, if you could work exactly; for here you have two Sides and one Angle; ſee the laſt *Chap. Sect.* 9.

5. And if you have a given Line, and deſires to ſet off a Parallel therefrom, but cannot meaſure off at both Ends as is needful, there being *Trees*, *Waters*, *Hills*, *Walls* or *Houſes*, obſtructing; you may meaſure, ſquare or perpendicular off at any Part of the given Line (that is moſt convenient) ſo far as you mind to go with your Parallel; at, or upon which Point, erect another Perpendicular to run Backſight and Foreſight, the which ſhall be exactly parallel to the given Line as was required.

6. Having given ſome Directions for ſtaking out Walks for Planting, yet your *Avenues* and *Walks* muſt end in ſome Figure or another, whether *Triangular*, *Circular*, *Oval*,

val, *&c.* for Coaches and Carts to turn in, as alſo where Walks meet or croſs other, its requiſite that there be ſome *Figure* for the ſame Reaſon.

How Avenues may end in *Semicircles* and *Triangles*, [ſee *Fig.* 2.] and if it end in a *Semicircle*, it may begin with the ſame, or rather (if the Ground will ſuffer) it ſhould begin with a whole *Circle*, having four oppoſite Opens the Breadth of the Walk. If it end with a *Triangle*, it may begin ſo likewiſe; but rather with a *Square*, (the Endings *Integer)* whoſe Entries or Opens muſt be in its *Angles*. And alſo where the Walks meets or croſs, I have a little *Figure* or Open, [ſee *Fig.* 2.] and yet the Trees in the whole Draught every Way lineal, except in the *Segment* of a *Circle*, where they deviate a little. The *Figures* ſhould be at leaſt three times the Breadth of the *Walk*, but ſo as the Ground will admit; let not the Trees in the *Figure* ſtand much above half the Diſtance of theſe in the *Walk*, but divide equally; make the Breadth of the *Walk* in Proportion to its Length. I think an *Avenue* a Mile in Length, may be 40 Ells in Breadth, [ſee *Chap.* V. *Sect.* 2.] neither ſhort broad, nor long narrow *Walks* are handſome, except in Caſe of *Walks* of *Shade*, and alſo of *Avenues*, where the Front of the *Houſe*, *Jams*, *Courts* or *Pavilions*, are to be obſerved; for the Breadth of the *Court* ſhould be at leaſt the whole

Length of the Houſe-Front; and if two Jams the Middle-Walk of the Avenue may be the Breadth betwixt, and the Side-Walks the Breadth of the Jams; or the Mid-Walk the Breadth of the whole Front, and the Side-Walks the Breadth of the Pavilions which are on the Corners of the Court; or divide the Houſe-Front in three, making the Middle-Walk the juſt Breadth of both the Side ones, ſo ſhall they be every Way lineal; but do not mask a fine Front, nor vail a pleaſant Proſpect. The Length of the Avenue, it ſhould run ſo far as (when we ſtand at the Houſe) we may loſe Sight of the far End, if poſſible. When it runs over a Brae, then to the Eye it appears *infinitum*, and where that cannot be had, it doth very well where the Sight terminates in a *Grove* or *Circle* of *Firs*.

7. The Diſtance of Trees is ſometimes according to the Quality of the Ground or Trees to be planted, ſometimes to the Number of Rows, or as the *Figure* to be planted will beſt admit. If a good Soil, plant at the wider Diſtance; if 4 Rows, as an Avenue, plant at 5, 6, 7, or 8 Ells Diſtance; if 2 ſingle Rows, at 4, 5, or 6 Ells; if *Circular Figures*, or the like, at 2, 3, or 4 Ells, or as the *Figure* is in Smallneſs or Greatneſs, and plant ſo as they may ſhew the *Figure* well.

Some Trees requires wider Diſtance than others, theſe that grow greateſt, by Conſequence muſt have the largeſt Diſtance, [ſee the next *Chap. Sect.* 10]

Note, That you intermix not great Trees and ſmall Trees in Planting, neither quick Growers and ſlow Growers; for I obſerve a Kind of Emulation amongſt them.

For Incloſures, [ſee *Part* II. *Chap.* IV.]

CHAP. IV.

How to plant Thickets *and* Orchards.

AS the Ground where you plant muſt be incloſed, ſo muſt the Trees ſtand ſome Diſtance off the Fence; if it be a Wall whereon are *Wall-Trees*, let the Standards be at leaſt one of their own Diſtances from the ſame; and if you deſign fine Walks round by the Wall, plant the Row next thereunto with *Dwarff-Trees*, or ſome low *Hedge*, and the Trees half a Diſtance off ſuch: If the Incloſure be a *Hedge*, obſerve the ſame Rule; alſo let the Trees be parallel to the Incloſure; but every Plot will not ſuffer to be planted every Way lineal and ſtand parallel to the Incloſure too: Therefore it will be neceſſary, *Firſt*, To enquire a little, what

Figures they be that may thus be planted, (a Thing I never ſaw enquired.) And, *Secondly*, How to plant thoſe that will not admit of this Order. And, *Laſtly*, How to plant the ſeveral Ways.

2. The *Figures* that may be planted every Way in Row, are many; yet, for Brevities Sake, I ſhall mention but ſome, as *Oblong* and *Geometrical Squares*, [ſee *Fig.* 5, 6, 7, 8, 9.] *Rhombus*, [ſee *Fig.* 10.] *Rhomboides*, [ſee *Fig.* 11.] *Oxigon* or *Equilateral Triangle*, [ſee *Fig.* 12.] *Orthygon* or right angled *Triangle*, [ſee *Fig.* 13.] *Ambligon* or *Triangle*, with one *Obtuſe* and two *Acute Angles*, [ſee *Fig.* 14.] A Sort of *Trapezia*, [ſee *Fig.* 15.] *Hexagon*, [ſee *Fig.* 16.] *Octagon* (as the whole *Fig.* 2.] Theſe regular *Polygons* are the neareſt Way for planting a *Circle*.

Many more *Figures* there be, both regular and irregular, that will admit of this Order, but theſe may ſuffice for Illuſtration. As for theſe that will not, you may plant them parallel, to as many Sides as you can, and let the reſt fall as they will.

3. Now as to the ſeveral Ways, ſo far as I know, there is but three principal Ways of Planting, every Way lineal, (although there be more built thereon) *viz. Square*, *Rhombus* and *Triangle*. In the *Firſt*, Three of them makes a right *Triangle*, and four of them deſcribes a *Circle*, [ſee *Fig.* 5.] In the *Second*, Three of them makes a *Triacute Triangle*,

and

and four of them deſcribes an *Ellipſis*, [ſee *Fig.* 6.] *Note*, That this Way will admit of Variation. In the *Third*, Three of them makes an *Equilateral Triangle*, and four of them deſcribes an *Oval*, [ſee *Fig.* 7.] And ſeven of them makes a *Circle* with a *Centre*, [ſee *Fig.* 17.]

3. The Manner of planting the *Firſt*, which is the common Way, is exemplified in *Fig.* 5. take the Length of one Side, and divide by the Diſtance you mind to plant at, and the Product tells how many; and what's over, if there be any, you may Proportion as before. Then, with your determined Diſtance on a Chain, begin at a Corner, and go round the Out-line exactly, where the Outer row muſt ſtand, thruſting in a Stake at every Length; theſe being in a ſtraight Line, and at equal Diſtances, alſo ſtraight bodied and perpendicular up. The Way is thus, one muſt ſtand at *Weſt*, and view to *Eaſt*; another at *South*, and view to *North*, cauſing a Third ſet a Stake in Line with both, as at L: So, removing from Stake to Stake, (viewing ſtill to the Oppoſite) direct the Third by Words or Signs, till his Stake be in Line with both. Thus proceed, till all the Plot be ſtaked out, [ſee *Fig.* 5.] the Way the Trees will ſtand when planted.

But if the Ground be unevenly, cauſe the Stake ſetter hold up a long and ſtraight Pole, (with a plumb Rule for holding it perpendicular)

lar) and when he removes, to thruſt a Stake exactly where the Pole ſtood; but if the Pole will not do, let the Viewers mount them on three footed, or ſtanding Ladders; and if that will not do, betake to the Rule mentioned in the laſt *Chap.* for taking a Line over a Hill, where both Ends are confined, as I have done in the like Caſe.

But becauſe ſome ſcarcely know Signs, the Stake ſetter muſt be told, that when the Viewer ſtands, his Face *Northwards*, and waves the Right Hand *Eaſtward*, that he muſt go a little *Eaſt* with his Pole, and when he waves the Left, then *Weſtwards*; when both his Hands at once *Eaſt* or *Weſt*, then he muſt hold the Head of the Pole ſo, (if he have no Plumb for his Direction in this) but when the Viewer moves both Hands or Hat, up and down, then the Stake-ſetter muſt fix there.

5. If you plant the ſecond Way in a *Square*, the out-line Round is not equal Diſtances, tho' the Oppoſite Sides are; here in this Example, one Side is about 12 and one Half Ells Diſtance, and the other 15, and the viewing being *Angular*, and not from oppoſite Sides, makes the Trees ſtand about 10 and one Half Ells.

But if you will plant *Rhombuſoical*, as is deſigned, then its done by the equal Diviſion of its four Sides, and by viewing to its Oppoſites, as the *Rhombus* A. B. C. D. within *Fig.* 6.

6. doth repreſent; for though its *Angles* be not ſquare nor equal, yet its Sides muſt be equal, and *Angles* oppoſite: And here it may be varied, as is ſaid according to the Shape of the Ground, by ſtretching longer, or opening it wider, A. C. is its Breadth, and D. B. its Length: Or you may alſo plant by the *Rhomboides*, as I have done, D. A. E. F. and conſequently many more Figures may be planted thereby, as well as theſe may be varied or altered, and yet all continue in this *Cyrus* Order.

6. In the third Way, take an Example in *Fig.* 7. where the Length of one Side muſt be divided by the determined Diſtance, *viz.* the Diſtance off the Fence being ſubſtracted, the Length of the Side A. B. is 119, and I deſign to plant at 8 and an Half Ells; therefore I divide 119, by 8, 5, decimally, the Product is 14 Diſtances, then there will be 15 Rows; here one Side is ſtaked out, whereby you may plant the whole Plot thus, take two Diſtances on the Chain, that is, hold one End exactly at A, and the other at C. Again, with that Meaſure on the Chain, hold one End at the firſt Stake, (*viz.* A.) and the other at the Second (*viz.* L.) cauſe a third take the Chain by the exact middle, and (holding it ſtiff) thruſt in a ſtraight ſtake at the Angle of the Chain (*viz.* N.) ſo thoſe three makes an equilateral Triangle; then remove, holding one end at the ſecond ſtake (*viz.* L.) And the other at the third (*viz.* C.) ſtretch the Chain and thurſt in a Stake at its Angle or Middle as before. Thus you may proceed from Stake to Stake till that Row be planted: and ſo on from Row to Row, till the whole Plot be ſtaked out, minding to ſet the Stakes ſtraight and perpendicular, conſidering their Thickneſs alſo; in all which if you be not very exact, ye cannot avoid Error, before you come on the other Side. Therefore I ſhall ſhew you another Way of my own inventing, which is more ſure and exact, and leſs Pains, *viz.* Let firſt that one Side be marked out, as before, and having ſet two or three Stakes of the ſecond Row, as is juſt now taught; then upon two, hold to the Chain, and plant another Stake to begin a third Row; (as at D.) then take the exact Diſtance betwixt L. and D. on the Chain, and therewith ſtake out the Side B. R. And becauſe there is one odd Row, take the exact half of that Diſtance (by doubling the Chain) and ſet from R. to L. then with the whole Length go betwixt B. L. thurſting in a Stake at each Length, and here you ſhall find three Diſtances and the half that was ſet off at the Angle R. Thus two Sides are ſtaked out, and he that can do this, can alſo ſtake out the other two, ſeeing the oppoſite Sides are anſwerable: For as **A. B.** is to **H. L.** ſo is **L. B.** unto **H. A.**

When the Plot is ſtaked out round, let one ſtand at X. and view to B. and another at O. and view to R. cauſe a Third, ſet a Stake in line with both, as at Q. Thus you may proceed from Stake to Stake, till all the Plot be marked out, ſtill minding the Way of your viewing.

A Plot will contain more Trees this Way, than any other Example. The two Plots, *Fig.* 5. and 7. are both alike in Shape and Quantity, each containing one Acre, 2 Roods, 16 Falls, 30 Ells: and *Fig.* 7. holds 11 Trees more than *Fig.* 5. planted at one and the ſame Diſtance.

7. A fourth Way of Planting, is that which is ordinarly uſed in *Thickets.* (ſee *Fig.* 8.) for when the Trees grows large, every other Row (ſuppoſe the ſhort ones) may be taken out, that the reſt may have freedom, and ſo be benefited by Sun and Air, where one *Fruit-tree* will bear more than Four crouded on others, and yet continue in as good Order; and in Part anſwers ſome complaining while their *Orchards* are young, as having few Fruit, ſeeing the more Trees there be while ſuch, the more Fruit to be expected, therefore when their branches begin to meet, remove them as is ſaid, lop and plant by your *Hedges*, I mean by the Diviſors of your Corn Land, and they being now great, are able to defend themſelves. It's alſo applicable to *Forreſt Trees* ſeeing while they are young, they afford little Shelter, except more than ordinary thick, and yet when they grow large cannot proſper to that ſtately Magnitude, unleſs the ſame Cure be uſed, *viz.* the Removal of each

ſecond Row, which may be effectually planted about the Borders of your Corn Land, Meadow and Paſture, who now needs no Fence ſave a few *Thorns* hanged about to keep the Cattle from Rubbing, which *Thorns* they are now well able to bear, albeit ſmall Trees are not: for the Winds take great hold on ſuch. Moreover in *Orchards*, if the ſhort Rows be *Cherries* and *Plumbs*, they not being long lived, will be paſt their beſt, e're the *Apples* and *Pears* (which may be in the long Rows) require their Room from them.

As to the Method, you muſt mark out the Plot round about, as in my Firſt, and view from *Angle* to *Angle* of each *Geometrical Square*; but then the diſtance of the outer Row about, muſt be more than in the firſt way, otherways the *Trees* will ſtand much nearer: As 7 is to 5, ſo is the Diſtance of the Outer-Row about to the Diſtance of the *Trees* through the Plot.

Or you may plant it by viewing from oppoſite Sides, as in my firſt Way, only you muſt plant the Out Line of Stakes round about, at Half the former Diſtance, and let the Stake-Setter paſs by every other Diſtance, (except you mean to plant *Gooſberries* and *Currant-Standards* in theſe Blanks, and then the *Trees* and *Shrubs* together makes it intirely one with the firſt Way) and now the Proportion is, as 7 is to 10, ſo is the Diſtance of the Outer-Row about, to the Diſtance of the *Trees*;

Trees; or as 10 is to 7, ſo the Diſtance of the *Trees* to the Diſtance of the Outer-Row about. Such Proportion doth the Side, and *Diagonal* of a *Geometrical Square*, bear the one unto the other, exact enough for our Purpoſe.

8. The fifth Way, and very notable, where *Orchard* and *Kitchen Garden* are all one; or where you have *Corn* or *Graſs* amongſt your *Trees*, or *Trees* (whether *Barren* or *Fruit*) among your *Corn* or *Graſs*, [ſee *Fig.* 9.]

If for *Kitchen-Garden*, divide it in Ridges, making the Tables or Paths in the Middle of the wideſt Interval; and then ſubdivide ſo as the *Trees* may fall in the Middle of the Beds or Borders. If for *Corn Land*, the Ridge muſt be between each Row, plowed within four Foot on each Side the Rows or Ranges of *Trees*; which eight Foot Borders muſt be delved each *Spring*; or if ſtiff Clay, at both *Equinoxes*, and no *Vegitable* ſuffered to grow thereon: For a Man, or two, with large and handſome *Hawes*, 10 Inches broad, will quickly go through them in *Summer*, and cut the *Weeds* at their firſt peeping: This would certainly be a great Improvement: And whether you apply to *Corn* or *Graſs*, *Fruit* or *Forreſt-Trees*, I would adviſe you to keep them thus clean of *Weeds*, and if ever you repent it, blame me.

9. A ſixth Way of planting *Trees*, is to make all the *Walks* or *Intervals* open from the *Houſe* proportionally, ſo as when you ſtand

at the *Houſe*, the *Walks* may appear all of an equal Breadth to the Eye, this would ſuit well with my Contrivance of the *Houſe*, being like the *Sun* ſending forth his Beams.

10. The Diſtance of *Trees* in *Thickets* and *Orchards*, is either according to the Quality of the Ground, *Trees* to be planted, or Method of Planting.

If a good and deep Soil, there *Trees* will live long, and grow great, and requires a large Diſtance. *Apples* planted the 1*ſt*, 2*d*, and 3*d* Way, may be from 8 to 10 *Ells* Diſtance. *Pears* ſo planted, at 10 or 12 *Ells*; and of theſe planted the 4*th* Way, may be at the leaſt Diſtance mentioned, becauſe they will ſtand near the greateſt, when every Second is removed: But if planted the 5*th* Way, they may be from 16 to 20 *Ells* one Way, and from 8 to 10 the other. *Cherries* and *Plumbs* from 5 to 7 *Ells*, being planted the 1*ſt*, 2*d*, 3*d* or 4*th* Way. As for the Diſtance of *Dwarfs* and *Wall-Trees*, ſee the next *Chap. Sect.* 5.

At the *Pears* Diſtance, plant *Oak*, *Elm*, *Aſh*, *Plane*, *Beach*, *Wallnut*, *Cheſnut*. At the *Apples* Diſtance, plant *Greens*, *Service*, *Lines*, *Poplars*. At the Diſtance of *Plumb* and *Cherry*, plant *Maple*, *Hornbeam*, *Hazel*, *Birch*, *Laburnum*, *Aſpen*, *Aſder*, *Willows*, *Pin*, *Fir*, *Yew*. And ſee the laſt *Chap. Sect.* 7. for more *Directions*.

If the Ground be level, plant ſuch *Trees* as grow loweſt at the *South-Side*, and ſtill higher by Degrees towards the *North*, that the talleſt and ſtrongeſt may be on the *North-Side*; ſo ſhall the *Northern* Blaſts be guarded off, and the *Sun-Beams* the better received in amongſt them. If the Ground be not level, plant ſuch as grow low on the higheſt Ground, and the contrary. And ſet always the crooked or leaning Side towards the *South Weſt*, whence comes the greateſt Winds, which in few Years will make them the more erect; for you may ſee that all *Trees* that are not well ſheltered from theſe *Weſterly* Winds, leans or declines therefrom.

When the Ground is all marked out with Stakes, put on the Rounding-ſtring, and make the Holes, [ſee the laſt *Chap. Sect.* 7.] I uſe not to make them leſs than 6 Foot *Diameter* for ordinary *Trees*, and you may ſuffer the Outer-Row of Stakes to ſtand, till you plant the reſt that you may view thereby.

How to order the Ground and plant, [ſee the *Second Part* of this *Book*;] and for *Incloſures*, [ſee the ſame *Second Part*, *Chap.* IV.]

CHAP. V.

How to make the Kitchen-Garden.

THE *Kitchen-Garden* is the beſt of all *Gardens*, but to return. In all *Gardens* it is ordinary, *Firſt*, to make a Border at the Wall. *Secondly*, A *Walk*. And, *Thirdly*, A Border on the other Side thereof; here, the *Walk* with a Border on each Side of it, going round the whole Plot, parallel to the Wall: but if your Ground be large enough, I bid you make a Diſtance intercept betwixt the *Walk* and the *Wall*. It's alſo ordinary to divide the *Garden* into four Plots, by two *Walks* croſſing from Side to Side: But I am not for any croſs *Walks* in *Gardens*; yet if thou would have more than one, (which divides the whole into two Parts) then make them all one way through the Plot leading to the Houſe, and equidiſtant from the middle, ſtill making the *Gates*, *Doors* or *Entries* front the *Walks*.

In your Kitchen-plots, and in Nurſeries for Trees, plant no Trees through the Ground: for when they grow up, they cover and choak the Ground ſo, that you will be neceſſitate to ſeek for another. Therefore, make only three Borders next and parallel to the *Walks* round on each Hand; plant the Firſt or that next the *Walk* on both Sides, with a *Holly-hedge*, the ſecond with *Gooſeberies* and *Currants*, the Third with *Dwarff Trees*, the Ground all open and void within for *Kitchen-Herbs* and *Roots*; which muſt be orderly divided into Ridges; and theſe again divided unto Beds; Furrows, and Drills for your more orderly and convenient Planting and Sowing. As for the Proportion note that.

2 The *Walks* muſt be in breadth according to their Length, *viz.* 1000 Foot long, 30 Foot broad; 500 Foot long, 20 Foot broad; 250 in Length, 15 in Breadth; 100 Foot long, 10 Foot broad.

The Borders 6 Foot broad, the Tables or Paths betwixt the Borders 2 Foot broad, and theſe betwixt the level Ridges (wherein the Ground is divided) 3 Foot broad, the Beds 6 Foot broad with Foot and half Furrows; you may make ſeven of them Beds in each Ridge, and the whole Length of the Plot all running from the Houſe; but if your Ground be ſmall you may make your Borders and Beds narrower, yet ſtill let the whole Plot, Ridges, Borders and Beds be equally divided, and their *Areas* or *Edges* three Inches higher than the Furrows or Paths, and ſo much higher than the Side of the *Walks*, as the Middle of the *Walk* is higher than its Sides, all handſomely clapt up with the Rakehead, by a Line: (and the like Order you may obſerve in your *Seminaries* and *Nurſeries* of Trees) then plant and ſow by Lines and Drills, both for Beauty and Conveniency.

When you would do this, divide the Bed, Border or Ridge at both Ends into ſo many equal Parts: (by help of the long Rule and ſmall Sticks) then ſtretch on the Line from End to End by theſe Sticks, and with the Corner of the Rule make a Mark by the Line, and therein ſet your *Herbs* and *Plants*; and for ſetting of Seeds, meaſure out, and ſtretch on the Line as before, and with the ſetting Stick make the Holes by the Line (not too deep) and therein put the Seeds. And if you ſow in Drills, make a Scratch or little ebb Gutter with the Point of the Stick by the Line, and therein ſow. If the Rows be two Foot Diſtance, let the firſt be one Foot within the Edge; If 6 Inches ſundry, make them 3 Inches off the Edge, and ſo proportionally. *Note*, That I have told the Diſtances of each Sort of *Kitchen-Herbs* and *Fruits*, *Part* II. Chap. VI. where is intended 6 Foot broad Beds, but where they are leſs, there muſt be fewer Rows.

3 The *Kitchen Garden* may be placed, it's half on each Side the *Houſe* and *Courts*, and when you plant or ſow, place every Species by themſelves (except ſuch mixture as is mentioned, *Part*. II. *Chap*. I. §. 3.) and where you have not a whole Ridge, or at leaſt a Bed of a Kind, you may compleat them with ſuch as are neareſt of Growth and Continuance: Alſo plant them of long laſt, and them that muſt

be yearly renewed ſeverally, each in Ridges or Beds by themſelves orderly; the Order is to make every Sort oppoſe it ſelf. *Example*, If you plant a Ridge of *Artichocks* on the one Hand, plant another at the ſame Place on the other: And ſtill where you have *Perennials* on the one Side, ſet the ſame Sort at the ſame Place on the other; and ſo of *Annuals*. In ſhort, what ever you have on the one Side, you ſhould have the ſame in every Circumſtance on the other. *Perennials* are ſuch *Plants* as continues many Years in the Ground, *Annuals* are ſuch as uſually die immediately after once they bear Seed, and that is uſually (tho' not univerſally) the firſt or ſecond Year.

4. As for *Phyſical Plot* you may have them in that Ridge of the *Kitchen-Garden* next the Borders: and if you will to have no other *Pleaſure-Garden*, you may have *Flowers* there, and on the Borders next the *Walks* alſo: and that Ridge or Interval betwixt the Walk and Wall will be excellent, for all early, rare and tender *Plants*. You may rill your *Phyſick Herbs* in *Tribes* and *Kindreds*, planting every *Tribe* by themſelves, and you may alſo place one of each Kind in the Alphabetical Order.

5. How to order *Hedges*, ſee *Part* II. *Chap.* IV. as for Walls, *Bricks* is beſt, next is Stone and Lime; 4 Ells is low enough, 5 or 6 if you pleaſe: but if you would make the *South* looking Wall *Semicircles* in it, that would conduce much to the Advantage of the Fruit, as

well as Hot-beds under it; The diſtance of Wall-trees will inform you what quantity to make them, as for example 15 Foot is the diſtance of *Cherries* and *Plumbs*, (except ſuch as the *May-Cherrie*, which, being, *Dwarfiſh* requires leſs) 18 Foot for *Apricocks* and *Peaches*, 20 Foot for *Apples*, 24 for *Pears*. Therefore, if you make the Semicircumference 18 Foot for *Apricocks* and *Peaches*, (you may plant two Dwarff-*Cherries* therein) then 36 is the whole Periphery, and as 22 is to 7: ſo is 36 the Periphery to 11 ½ *fere* the Diameter; and having the Diameter you may eaſily make any Part of the Circle: and let the plain or ſtraight Wall betwixt each Semicircle be juſt one Trees diſtance likewiſe.

And alſo in ſtraight Walls divide equally, and plant none in the Corners, meaſure firſt off 6 Foot on each Side the Gates or Doors for *Honey-ſuckles*, *Jaſmines*, &c. And whatever be the diſtance of your Trees, ſet them half therefrom, as alſo from the Corners, except where you make all their Heads ply one Way; (as on a low Wall) ſuch may ſtand three Foot off the Corners, or *Honey-ſuckles* they lean from, and a whole diſtance off theſe they lean towards. You may plant a *Gooſeberrie* and *Currant* in the Intervals of your Wall Trees, while young, and when the Trees approach, remove them. Let the Roots of your Wall-Trees ſtand near a Foot from the Wall, with their Heads inclining towards the ſame: Wall

Trees in Orchards (whoſe Standards are in the Quincunx) ſhould ſtand oppoſite to the mid Interval of the Standards.

The diſtance of Dwarff Standards is 16 Foot, where there is but one Row, and in following this Rule of the three Borders, they will ſtand juſt 16 Foot off the Hedge, obſerving to plant in the middle of the Borders. The diſtance of *Gooſeberries* and *Currants* 6 Foot. But in all your Plantings and Sowings divide the Ground ſo, as each Kind may ſtand and grow equally.

To conclude, theſe three Borders going round at each ſide of the Walks handſomely made up and planted, as aforeſaid, will ſecure the Ground within, from hurtful Winds and Colds, and make People keep the Walks (handſome pale Doors being on the Entries of the Hedges) ſo as they may neither wrong you nor themſelves. Alſo the Hedge, Dwarff-Standards, Shrubs, and Wall-Trees being all well prun'd and plyed, with the Borders and Walks clean and orderly kept, will make it look like a Garden of Pleaſure, and hide all the Ruggedneſs that happeneth in Kitchen-Ground by delving, dunging, turning and over-turning throughout the year.

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CHAP. VI.

How to make the Pleaſure-Garden, *&c.*

Pleaſure-Gardens uſe to be divided into Walks and Plots, with a Border round each Plot, and at the Corner of each, may be a Holly or ſome ſuch train'd up, ſome Pyramidical, others Spherical, the Trees and Shrubs at the Wall well plyed and prun'd, the Green thereon cut in ſeveral Figures, the Walks layed with Gravel, and the Plots within with Graſs, (in ſeveral places whereof may be Flower-Pots), the Borders boxed, and planted with variety of fine Flowers orderly intermixt, weeded, mow'd, rolled, and kept all clean and handſome.

Plain Draughts are only in uſe, and moſt preferable; that which I eſteem, is plain ſtraight Borders and Pathes running all one Way, that is, from the Houſe with one Walk parting it in the middle leading to the Houſe Door: and if the ground be large, you may make one round by the Wall too, as the Pleaſure-Garden of fig. 1. Let the Borders and Paths be both of a Breadth, (*viz.* 6 Foot) box the Borders, and plant them with Flowers, lay the Paths as well as the Walks with Gravel, plant the Walls with Fruit and Flower-bearing Trees variouſly.

Outter Courts have only one Border at the Wall, planted with *Lawrels* and other Greens, one Pathed or Brick Walk in the middle, leading to the middle of the Houſe-Front with a long Graſs Plot on each Hand.

2. The Borders of your Kitchen Garden round by the Walks, may be Boxed with *Thyme*, *Lavender*, *Hyſop*, *Rue*, &c. the next with *Parſly*, *Strawberries*, *Violets*, *Gellyflowers*, &c. *Cherrie*-Gardens and *Phyſick*-Gardens with *Sweet-brier* often cut, or *Box* cut three times *per annum*, at *April*, *June*, *Auguſt*, minding to cut their Roots at the inſide every ſecond Year, that they exhauſt not the Strength or Nouriſhment of the Flowers or Herbs. But that which I prefer for *Flower* Gardens above all, is *Dwarff-Juniper* raiſed from the Seed and planted thus, When the Ground is levelled, meaſure out the Borders, (but raiſe them not above the Walks, except you mind to lay Gravel) ſtretch a Line, and with the edge of the Rule mark alongſt thereby, and therein ſet the young Sets of *Box*, or the young Plants of *Juniper* at 2 years Growth; then prepare the Borders, by delving in conſum'd dung of Cows and Sheep, covering on a little Lime topt with a little Sand, to lye all Summer, kept clean from Weeds by hawing. At the beginning of Winter delve and mix together

ther, to lye all Winter un-Raked, and at the Spring redelve, ſtir and mix it throughly, and trim and plant your Flowers and other Plants in their Seaſons. See *Part* II *Chap.* VII.

3. In making the Walks in any Gardens, *firſt*, Level up the Borders at its Sides, *ſecondly*, drive a Row of Stakes in the middle of the Walk, and Level them accordingly, *i. e.* ſtretch a Line croſs the Walk betwixt the two level Borders, and mark where it hits the Stake in the middle of the Walk; do this at both Ends, and viewing betwixt, will level the reſt, ſee the next *Chap:* of *Levelling*. But you may mind, that the Walk muſt riſe a little in the middle, and yet the middle of the Walk, and top of the Boxing of the Border muſt be Level, *i. e.* The Boxings ſo much above the Side of the Walk; as the middle of the Walk is above its Sides. Where your Boxing is Timber or Stone, fill up the Border of Earth to the top thereof, but where your Boxing is of *Box*, *Juniper* or the like, the Earth within the Border and Edge of the Walks and Paths without, muſt be equal.

As for the Riſe or Swell that Walks has, which makes them *Segmenta Circuli*, Graſs or Brick Walks may have for 30 Foot broad, *6* Inches riſe; for 20 Foot, 4 Inches; 10 Foot, 2 Inches; and let Gravel have an Inch more proportionally: and it agrees with the Rule of Proportion in Arithmetick, as 20 is to 4, ſo is 30 to *6*. If Gravel or Brick Walks or

Paths lye by the Side of Graſs, make the Graſs half Inch higher than ſuch. If the Walk be Graſs, make 2 Foot Tables, or Paths Gravel, betwixt it and the Border.

4. To lay Graſs, firſt level the Ground, whether Walk or Plot; and it's the better to ly a Year ſo made up, before you lay the Turff; becauſe it may be levelled up again, if it ſink into Holes, If it lye wet, bottom with Stones and Rubbiſh; and if the Earth be fat, take it out, and put in Sand; however lay a Foot thick Sand immediately under the Turff: then by the Square ſtretch Lines, ritt with the ritting Iron (which is an half Round put into the End of a crooked Stick) and raiſe the Turff with the Turff Spade, (which is broad mouthed, otherwiſe all one with the Husbandmens breaſt-Turffing-Spade) let the Turff be of equal Thickneſs, near Inch and half thick, a Foot and half broad, and as much in Length, lay their green Sides together, when you put them in the Cart, but do not Roll them when brought home, lay them all even and cloſs, feeling each particular Turff with your Foot, ſo as you may diſcern any Inequality, to be helped immediately; in laying ſtill beating every two three Rowes of Turff while moiſt, with the Timber Beaters, and when the whole is layed, and well beat, roll well with the Stone-Roller, which ſhould be as big as a Hogſhead, The *Spring* and *Autumn* is the beſt Time, And if you mind to keep a good pile of

Graſs, ſuffer it never to grow Inch long: Beat, mow, and roll often, eſpecially in the Mornings and moiſt Weather.

5. But if you would lay the hard Tile or Brick Walks, prepare as for Graſs, minding it wants the breadth of the Brick of the true Hight: for you muſt ſet them all on their Edge cloſs by other on a Bed of Lime, laying the Side of each other Row croſſing the ends of the other, and place one in the middle of the Walks that both Sides may be regular.

6. To lay Gravel, cleanſe firſt the Bottoms of the Walks of fat Earth, and root Weeds, and bottom it with *S*tones; and lay over that about half a Foot of clean round Gravel, and about three Inches top Gravel of equal Greatneſs, which may be like Beans and Peaſe; you muſt make it thus equal by ſifting, and ſo rake, tred and beat; and when compleatly levelled, beat well with the Timber Beaters, while moiſt, then roll ſoundly with the Timber-Roller, and afterwards with the *S*tone-Roller, eſpecially in Rain, for which the *Spring* and *Autumn* is beſt; but if dry Weather, you muſt daſh Water on the Roller (continually in Rolling) with the watering pot, and if you are forced to uſe *S*ea or Water *S*and, you may beat ſome good clay to duſt and mix with ſuch, before you lay it; weed, and roll frequently.

7. For the orderly planting of Flowers there may be three Ways, as firſt in the Borders of Pleaſure,

Pleaſure-Gardens or Courts, Plant 5 Rowes in the Border, and intermix them orderly, *i. e.* divide and plant every ſundry Sort through the whole Garden at equal Diſtances, and not only ſo, but every ſundry Colour thereof alſo; let never two of a Kind nor two of a Colour ſtand together, without other Kinds and Colours interveening, ſo as there may not be two or three of a Kind or Colour at one End, Border, Plot or Place, and none thereof through the reſt, but univerſally and ornamentally intermixt: And when you find a Breach by ſome being paſt the *Flower*, you may have various *Annual Flowers* ſown in Pots, ready to plunge into the Vacancies of the Borders for continuing this Beauty.

Secondly, In my Sort of *Flower-Gardens*, which is Borders and Paths running all one Way, *viz.* from the Houſe, plant 5 Rows, and intermix them, not as in the laſt Way, but ſet 5 Rows of each Kind croſs the Border, ſo as 25 of each Sort may ſtand in a *Geometrical Square*. As if you ſet a Square of *Tulips*, a Square of *Boars Ears*, a Square of *Crocuſes*, a Square of *Gelly-Flowers*, a Square of *Anemonies*, and a Square of *Couſlips*; and ſo a Square of *Tulips*, another of *Boars Ears*, &c. Through that Border intermixing the Colours of each Sort, then may you make the next Border ſo intermixt, but differing; minding, that as you intermix the *Bulbous* and *Fibrous* in each Border, ſo muſt they be alſo in the croſſing, that the Square of *Fibrous* in this Way oppoſe the Square of *Bulbous* in the next; and likewiſe, whatever Border ſuch Sorts are in, on the one Side of the Walk, ſet the very ſame in the Border equidiſtant from the Walk on the other Side, that the whole may be regular and uniformly intermixt all the Year, looking from all Sides, Ends or Angles.

Thirdly, In Nurſeries of Beds and Ridges, plant every Kind in *Thickets* by themſelves, and *Annuals* and *Perennials* by themſelves, (except only that you intermix their Colours) that is, make a whole Bed or Ridge of each Kind, 6 Rows in the Bed, the *dwarfiſh* may be 8 Rows; thus every *Thicket* of them flowering in their own Order will have a great Shew, and at a great Diſtance: And here alſo obſerve Uniformity, that is, alike on each Hand, [ſee the laſt *Chap. Sect.* 3.] for if you have a Ridge or Bed of *Gelly-Flowers*, or the like on the one Side, plant another thereof at the ſame Place on the other, *&c.*

And becauſe *Flowers* muſt be removed, ſome in one, two, or three Years, and the Earth renewed or enriched, and properly prepared, elſe they degenerate; (becauſe in long Time they exhauſt the Subſtance of the Ground, at leaſt that Part appropriate to them) therefore you have a good Conveniency for effectuating the ſame by theſe laſt two Models preſcribed; for often you will have ſome Beds or

Squares where your *Annuals* ſtood, to replant you *Tulips*, *Anemonies*, or the like unto; and ſo another Sort where theſe ſtood, and your *Annuals* again where this laſt was; and becauſe here you remove a whole Bed or Square of a Kind at once, you may very conveniently prepare, delve, ſtir, beat, ſift and mix it throughly with the Soil proper, (a Thing moſt neceſſary) and this you could not well do, where they are ſcattered as in the firſt Way. [See the Rules mentioned *Part* II. *Chap.* I. *Sect.* 10. and *Chap.* VII.]

As to *Terraſe Walks*, if the Brow on which you make them be not too ſteep, the Work ſhall be the more facile: If you build them up with Walls, be careful to found deep enough according to the Level; and if the Middle of the *Terraſe* be on the Central Line of the *Houſe*, or of any *Walk*, make the *Stair* of the upmoſt and downmoſt there, to part at a Plat on the Head, going down at both Sides; ſo much of the *Stair-Caſe* may be within, as that the outer Edge thereof may be in a Line with the Border at the Wall; by this it mars not the *Walk*, the reſt may be at the Ends: Plant the Border at the Upperſide of the *Walk* with *Wall Trees*, the Underſide (being but *Ell* high) with *Laurels*, &c. But if your *Terraſe* conſiſts only of *Walks* and *Sloping-Banks*, you may have the Border at the Head and Foot of each *Bank* on either Side the *Walks*, planted

ted with *Standard-Cherries*, &c. And the *Banks*, of *Violets*, *Straw-Berries* or *Graſs*.

9. As for *Ponds*, make them large and broad, ſuch being beſt both for the Health of *Fiſh* and *Fowl*; clean, and moſt preferable Water for watering *Plants*; *Square*, *Triangle*, *Circle*, *Oval*, or what *Figure* fits your Ground beſt; let them be 5 or 6 Foot of ſolid Water at leaſt, with *Sluices* to let it run in and out at Pleaſure.

I am againſt *Arbuſt* and *cloſs Walks*, except *Trees* their natural cloſing, where we have both Shade and Air.

CHAP. VII.

How to Level Ground.

I Have often wiſh'd, That there might be ſome Rules found, whereby this expenſive Work might become more eaſie. There be two Sorts of *Levelling*, *viz.* The *Horizontal* and *Sloping*: The *Firſt* is beſt known, but the *Laſt* more profitable and convenient. *Example*, I have made a *Plot-Slop* 4 Foot in 200 long, and 18 Inches in 380 Foot the other Way. This was not perſpicuous

cuous to vulgar Eyes; yet to have made it *Horizontal* would have been ridiculous as to Time, Pains and Expences. And in *levelling* the *Walks* about a *Plot* (which ſloped naturally) to make them correſpond with the Ground round, I behoved to make the middle *Walk* agree with the ſide ones, whereupon it ſlops 10 Foot in 370 long: Now if I had made this *Horizontal*, it would have been 5 Foot, or 10 Steps lower than the one Side *Walk*, and as much higher than the other, and ſo worſe and more inconvenient than before, both as it is a *Walk*, and anent Correſpondency with the reſt of the *Ground* within; therefore I am for levelling any *Ground ſloping*, that it may turn a little to the Sun (if poſſible) for draining Water, that it may correſpond with its *Adjuncts*, and above all, to prevent the more coſtly Way; for it's certainly a principal Obſervation in *Levelling*, not only to cauſe the *Ground* of it ſelf ſerve it ſelf, but alſo to level it as it lies moſt conveniently, which is the cheap and eaſie Way of *Levelling*. When you have a Row of Stakes ſet in a ſtraight Line, and about 20 Foot Diſtance, as in the Edge of a Border or Middle of a Walk, the Way of *Levelling* them either *Horizontal* or *Sloping*, is to mark and put a Nail in the two Stakes which are at the Extreams or Ends thereof, and view betwixt; cauſe mark all the reſt which are betwixt in a level Line therewith. This is the eaſieſt, the exacteſt and quickeſt Way: And in the ſame Method you may go round any Plot, and conſequently croſs (every Way) the ſame accordingly.

In that which you would have *Horizontal*, place the long Rule and the Level at one End, ſuppoſe the Sole of the Door, till the Plumb fall right in rencountring, and view alongſt the ſaid Rule (as on a Fowling-Piece) that you may ſee what Part of each Stake it hits, and cauſe one with a Piece of white Paper, or white hafted Knife, hold the ſame at each Stake, its Haft tending out, (as the Nails which carry up the Line) and direct him by Words or Signs to hold up or down till it be juſt level; when they are all marked, meaſure down ſo much on each Stake as was raiſed up for Conveniency in Viewing; there mark, put in Nails a little, ſtretch on the Line, and level up the Earth or Gravel thereunto.

And where you would have determin'd *Slops*, ſet on the *Level*, and make the far End Stake in a level Line therewith, then meaſure down upon the ſaid Stake or Pole from the marked Place, ſo much as you deſign the *Slop*, and put in a Nail with white Paper about it, and at the Upperſide of the Rule in the Stake at the Door, put in another Nail, and by viewing betwixt theſe two, mark all the reſt as before. If the Diſtance betwixt the Extreams be far, where the Sight may dazzle, let the Viewer deſcend his Station, and come forward at every 5 or 6 Stakes, and holding his Knife at the laſt marked Stake, cauſe his Aſſiſtant or Stake-Marker proceed.

To level as the *Ground* lies, let its *Slop* be what it will, you need neither level nor rule (except you pleaſe to try how much it ſlops after its done for Satisfaction) only ſet Stakes as before, and viewing the *Ground* narrowly, put Nails in the Stakes, which are at the Extreams, where you think the *Ground* will run, when levelled, to make it ſerve it ſelf, and as it lies beſt or eaſieſt for *Levelling*; and when you have concluded upon the *Level* at the Extreams, mark all the Stakes in the Interval by viewing, as above.

2. But to Proportion the *Level* to the *Ground*, is the whole *Art* of *Levelling*. 'Tis true it is eaſie, if you have a *Plot* or *Walk* a Foot higher at one End, to take Half a Foot thereof, and lay on the low End, ſo as the two Ends may be *Horizontal*; (I have already ſhew'd how to *level* having the two Ends found) or if it be *Horizontal*, to take 9 Inches off the one End, and lay on the other, that it may ſlop 18 Inches; but if ſome Places of it ly one Way, and ſome another, and ſome neither the one nor the other, this increaſeth the Difficulty. Wherefore you muſt firſt drive Stakes at the Corners of the *Plot*, then view the *Ground* about, and put Nails in the Stakes where you would have the *Level* run, or at

leaſt where you think by your Eye it may moſt conveniently come to make it contain it ſelf, and eaſieſt to be levelled: Alſo ſet up ſeveral Stakes in the Intervals and croſs Ways through the *Plot* from oppoſite *Angles*, and by viewing betwixt the foreſaid Nails every Way, mark all the Stakes level; but if you cannot ſee from the Marks of this ſuppoſed *Level* which are on theſe Corner Stakes, ſeeing there may be ſome underneath the *Ground*, little Hills, or ſome ſuch Obſtructions in the Way, then meaſure equally up upon each of them, ſo far as you think convenient for getting your Sight, and mind to take down the ſame again after Viewing.

When all is marked with this ſuppoſed *Level*, go over and note narrowly how it will agree, that ſo as your Reaſon ſhall teach you to alter, take up one End or down the other, or up or down both, till you bring it to ſuch Proportion, as to do its own Buſineſs it ſelf. Or you may do more exactly thus;

Suppoſe yov have a Border or Middle of a *Walk*, with ſixteen Stakes driven therein at 20 Foot Diſtance, all marked with a ſuppoſed *Level*, and 10 of their Marks above Ground, and *6* under Ground: *Firſt*, Meaſure how far the Marks on each of the 10 Stakes is above Ground, and write them down particularly, and adding their Meaſures together, you find 13 Foot 4 Inches. *Secondly*, Meaſure how far the Marks of the *6* Stakes are under Ground, and write down, adding them together, you find it 12 Foot; ſubſtract the one from the other, and the Difference is 16 Inches, which muſt be divided by 16 Stakes in the Border, that is, one Inch to each Stake; ſo that this ſuppoſed *Level* is an Inch higher over all than the true *Level*, which being taken down, will make the *Ground* there level it ſelf, and no more. This may ſuffice for Example, but I could ſay more, if I did ſee your *Ground*. And if you can thus proportion the *Level* to one Border, Walk, or one Row of Stakes; you may by the ſame Rule find the *Level* for the Stakes round and croſs the *Plot*, and conſequently level the ſame accordingly; for having once concluded on the *Level*, drive Stakes over all the *Plot* as in my firſt Way of *Planting* of *Trees*, [ſee *Chap.* IV. *Sect.* 4.] and mark and put Nails therein, as above is taught for carrying the Line; except you mean to follow my Method of levelling the *Kitchen-Garden*, or the like for *Planting* or *Sowing*, which is only to level one Border thus by Stakes and Lines, round each *Plot*, and by the Eye level up the *Ground* within thereunto, all along in *Trenching*, albeit this is not ſo proper for *Courts* and *Graſs Plots*; however, as by this Means I uſe to level *Ground* without a *Level*, ſo do I think this Way of finding out the true *Level*, by Means of a ſuppoſed one, worthy your

Notice, and if rightly improven, ſave you much Money and Pains.

Be cautious in founding your Walls, leſt you undermine them in *Levelling*; nor is it convenient ſometimes to confine your *Level* to the Foundation of Walls already built, for in ſo doing, you may loſe more, than would caſt down and rebuild: But in ſuch Caſes you may rather build under gradually.

3. There be ſome bad lying *Plots* and *Walks*, with an Aſcent at the Head, hollow in the Middle, level at the Foot, theſe and the like are very troubleſome to level under one Denomination; for the taking down the Hill bares it ſo, that *Plants* cannot proſper thereon. Some are neceſſitate to take out the Gravel, Tile, or Stones, ſo much deeper, and travel Earth again. But I rather adviſe to make *Terraſes*, you need not confine to the Number of Banks, but only to the Proportion and Uniformity. If it tend all one Way, as high at one End, and low at the other, then its proper enough for perpendicular *Walks* that front the Houſe; but if low in the Middle and high at both Ends, or low at both Ends and high in the Middle, then more proper for parallel *Walks*, (whoſe Extremities are equidiſtant from the Central Line of the Houſe) remember to divide and ſlop them equally.

This minds me of ſome Abuſes which I have ſeen, as a *Plot* of *ſloping levelled Ground*, with another *Horizontally* levelled lying at the

Foot thereof (at leaſt not under one *Slop)* or *Horizontal Walks* and *Borders* lying by the Foot and Head of *ſloping Plots*, theſe are unſeemly; for you ſhould always make them ſlop under the ſame Denomination (except in ſteep and high Banks) I have made *Walks* of 18 Foot broad, ſlop 18 Inches from one Side to the other, becauſe the whole *Plot* ſloped the ſame Way, ſo much proportionally, yet to the Eye appears very pleaſant; but where ſuch *Horizontal* and *ſloping Pieces* ly contiguous, the Defect is eaſily ſeen; therefore if you be neceſſitate to lay ſome *Plots* ſo (albeit I know no Reaſon for laying *Walks* ſo) make rather a *Hedge* to intercept, and in all your Works let there be a Connection.

4. There be ſome more Obſtructions in *Levelling*, as in a long *Walk*, when you have the two Ends found and marked, (either with a ſuppoſed or true *Level)* and cannot ſee betwixt, to do it exactly by Reaſon of Length; here two may go to the Middle, or near it, where you may conveniently ſee both Ends, looking back and fore, there drive in two Stakes near the Length of the long ſtraight Rules Diſtance, at which hold on the Rule, and let one View alongſt the ſame till the Mark at the *Weſt* End be level therewith, and the other towards the *Eaſt*, till the Mark there be alſo level with the ſame, ſo both may alter up or down till they have their Deſires at once: Then fix the Rule, and having as many Stakes ſet as is

needful, you may view Backſight and Foreſight hereon, and level them all exactly.

5. But if a *Wall*, a *Houſe*, &c. intercept, meaſure perpendicular, and exactly up to the Top thereof, and on the other Side meaſure down the ſame again; and ſo ſet forward the *Level*, but ſo as it may communicate with the reſt when *Obſtructions* are removed.

But if a *Hill*, go to the Top, ſet the Rule level, and laying an Eye thereto, cauſe one with a long Pole go down, till its Top be level therewith (he holding it level by a plumb Rule) then deſcent your Stations, and ſet the upper End of the Rule where the Pole ſtood, there level it, and do as before; thus, from Station to Station, to the Foot of the *Hill* (if it be ſo great) keeping count in a *Note Book*, what Poles and Parts, the which may be as eaſily taken down the other Side by the ſame Method.

But if it be poſſible to ſee over the *Obſtruction* on 3 footed ſtanding Ladders, by Help of long Poles or Pikes (as I have done in the like Caſe) raiſe your *Level* thereon, and having viewed and marked that on the other Side, meaſure down the ſame there, *&c.*

6. I might here ſpeak of the Solidity of Earth, whereby you may more readily count the Expence of *Levelling*: But having ſhew'd in the next *Chap. Sect.* 5. how to meaſure Solids, I preſume its applicable to Earth (as well as Timber, Stone, *&c.*) for if you know

the Breadth, Length and Depth thereof, you may find how many ſolid *Ells*, &c. And if you know how many *Ells* and *Parts* will load a Cart, and how many Carts a Day, you may go near to calculate the Coſt of the Whole.

7. In levelling any Ground for *Kitchen Ground*, *Orchards* or *Nurſeries*, take not away its good Earth or Surface (as you bring down the Heights) but always turn over the upper Part thereof behind you, carrying away that which is below ſo much deeper, that it may contain that Surface, and put the bad Earth in the Bottom of Hollows, with better Mould above it.

In the Practice of *Levelling* (or other Works) contrive the Working ſo, as there may be ſtill a Motion amongſt all the Parts; and albeit Carts are cheaper for *Levelling* than Wheelbarrows, if the Way of Carriage be not very ſhort; yet if you do not ſet as many Men to fill the Carts, as may have the one full againſt the other come in, and no more, you loſe conſiderably; and this will be according to the Diſtance of Carriage, or as the Earth is capable of being wrought; and ſo with Wheelbarrows, for two Wheellers, three Barrows, and one Filler, ſometimes doth well; ſometimes more Fillers or fewer Wheellers, yet ſtill let them have a led Barrow. And if this could be done with Carts alſo, it would be of great Advantage; wherefore, in my Opinion, there is no Way ſo probable to work this Effect, as the Carts with three Wheels, whereby two Men, with two of them Carts, and one Horſe can do as much as three Men, two Horſes, and two Carts; for one Man to fill the led Cart, the other Man to drive the one Horſe; and when he comes in, he has nothing to do, but take the Traſes and Hooks off the empty Cart, and put upon the Rings of the full one, and ſo drive on. This Cart has no Trams or Limbers, but a Swingle-Tree or Breaſt-Board before, where the Rings that keeps the Traſes are; it has a handſome folding Body, the third Wheel is about 30 Inches *Diameter*, all Iron, and runs in a Sheers of the ſame, faſtned perpendicular under the Middle of the Forebreaſt, with a turning Pin of *Iron*; the other two Wheels are common, but it they have an *Iron Axis* the better.

8. To bring in *Water* in *Pipes* to your *Houſes*, *Courts*, *Gardens*, *Ponds*, *Parks*, &c. conſider on the *Level*, for as the Place where you convey it into, muſt always be lower than the Fountain from whence it comes, elſe thither it cannot flow; ſo muſt you take Notice, that no Hill in the Way of its Conveyance be ſo high as the Fountain it ſelf. You may find the *Level* by placing your Inſtrument at the Well or Fountain, as I directed in *Walks*; and if a Hill intercept that Sight, plant on the Top thereof, that by Backſight and Foreſight you may find the Difference, that hence you may know whether you can carry it about

the

the *Obſtruction*; but if the Diſtance be far, you need to be the more exact. As for Inſtrument, the Croſs deſcribed *Chap.* III. whoſe Sights may be two Proſpect Glaſſes, may do well whether for one or many Stations. Let one ſtand at the Spring Head, another betwixt and the Place whereunto you deſire to carry the Water, a large Diſtance ſundry, but ſo as a third Man about the Middle may ſee both their Mark-Boards, that is, on their Pike Staves, and direct them to hold level by his Back and Foreſight, deſiring them to keep Account what Foot and Parts; and ſo come foreward till the Aſſiſtant at the Well plant where the Foremoſt ſtood; and thus proceed all in a ſtraight Line, and do as before, from Station to Station ſo long as needful: At Length, add all the Meaſures of Back-Stations together, and all of the Fore-Stations; ſubſtract the one from the other, and the Remainder gives the Difference of *Levels* betwixt the Fountain and the appointed Place.

Allow to the Fall of the Water, for every 1000 Foot in Length 12 Inches ſlop at leaſt.

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CHAP. VIII.

How to Meaſure, Divide, and Lay out Land, *&c.*

SOME following other Country Books, ignorantly meaſure out Ground with their Meaſures: Therefore I am here to inform ſuch, That

In meaſuring all *Figures*, whether *Superficial* or *Solid*, it is requiſite to know, *Firſt*, Wherewith they ſhould be meaſured. *Secondly*, How they ſhould be meaſured.

Land is done by *Ell* or *Fall Meaſure* (alſo *Maſons* rough Work Buildings) Stone, Board and Glaſs by *Foot Meaſure*, 12 Inches a Foot (and no Diſtinction betwixt a *Scots* and *Engliſh* Foot) the *Glaziers* uſe only 8 Inches, but the Act of Parliament hath reduced them to 12 as others. Some would think 12 Inches but a third Part more, whereas it is equivalent to 2$\frac{1}{4}$ of theirs; for 8 times 8 is 64, and 12 times 12 is 144, out of which I get 2 times 64, and the 16 remaining is $\frac{1}{4}$ thereof. This minds me of that Queſtion, *viz. Whether is a Square Half Foot, or Half a Foot Square moſt?* I have heard ſeverals ſay they were both alike; but this was their Miſtake, for a Half Foot

Square (*ſuperficial*) is but the Half of a Square Half Foot, and if *ſolid*, its but $\frac{1}{4}$ thereof.

The *Scots* Ell, according to ſeveral Acts of Parliament, is three Foot one Inch, or 37 Inches long: 6 Ells long and 6 Ells broad, is 36, a *Fall Square*: 10 Falls in Length and 4 in Breadth, is 40, a *Rood Square*: 40 Falls in Length and 4 in Breadth, is 160, an *Acre*. See the *Table of ſuperficial ſquare Meaſure*. And theſe that deſires *long Meaſure*, 6 Ells long is a Fall, 40 Falls a Furlong, 8 Furlongs a Mile. See the *Table*.

A Table of ſuperficial ſquare Meaſure according to Scotland.

Acres	4	160	5760
	Roods	40	1440
		Falls	36
			Ells

A Table of ſuperficial long Meaſure according to Scotland.

Ells			
6	Falls		
240	40	Furl	
1920	320	8	Mile

We differ in meaſuring Land from the *Engliſh*, as the Fall differs from the Pole; our Fall is 6 Ells, or $18\frac{1}{2}$ Foot; their Pole is $5\frac{1}{2}$ Yards, or $16\frac{1}{2}$ Foot.

By what is ſaid, I hope you know wherewith to meaſure: It only remains then that you know how to meaſure, of which anon.

2. In meaſuring all *Superficies*, we take Notice of the Breadth and Length; but of *Solids* the Breadth, Length and Depth. To inſtance in a few, and firſt of ſome *ſuperficial Figures*, as a *Geometrical Square* [ſee *Fig.* 18.] it is meaſured by multiplying one Side in it ſelf (*viz. a. b.* or *c. e.* or *a. c.* or *b. e.*) which here is $30\frac{1}{2}$ Falls. In your Workings I would adviſe you to make Uſe of *Decimal Arithmetick*, becauſe thereby you may work whole *Numbers* and *Fractions* together with great Eaſe and Quickneſs, and you may reduce ordinary *Fractions* into *Decimals*, by multiplying the *Numerator* by 100 or 1000, &c. and dividing the Product by the *Denominator*, ſo ſhall the $\frac{1}{4}$ of any Thing be 25, the $\frac{1}{2}$ 5, and the $\frac{3}{4}$ 75; therefore multiply 30. 5. in it ſelf, the Product is 930. 25. which is 930 Falls and $\frac{1}{4}$ of a Fall; ſee the *Example*, for when you multiply *Decimally*, whatever *Fractions* are in *Multiplicand* and *Multiplicator*, cut them off after *Addition*; the which, if there be any, will be a *Fraction*, as here you ſee two

```
  30 5
  30. 5
 ------
  1525
 9150
 ------
 93025
```

cut off, *viz.* 25 which is ¼ of 100, the Fall being here into 100 Parts the *Integer* of 25; and when you divide *Decimally*, as whole *Numbers* and *Fractions* by whole *Numbers*, put ſtill a Daſh betwixt the *Whole* and *Fraction*, and notice how often you will get your *Diviſor* placed under the whole Numbers of your *Dividend*, and juſt ſo many whole Numbers will be in the *Quotient*, and the reſt *Fractions*; or if you divide *Whole* and *Fractions* by *Whole* and *Fractions*, notice how many times you may place the whole Numbers of *Diviſor* under whole Numbers of *Dividend*, &c. or if you divide whole Numbers by *Whole* and *Fractions*, whatever *Fractions* be in *Diviſor*, add ſo many *Cyphers* to the *Dividend*, and do as before.

You may reduce this (or any other) *Plot* into *Acres*, by dividing by 160 the *Falls* in one *Acre*, and the Product here will be 5 *Acres*, 130 *Falls*, and ¼ of a *Fall*. But if you would further know what this *Fraction* (25) is in *Ells*; ſay, if 100 be equal to 36, the *Ells* in one *Fall*, what is 25 equal unto? Multiply the 2d Number by the 3d, and divide by the firſt, and the Anſwer will be 9 *Ells*; ſee it wrought.

```
             36    1
             25   43
            ----
900         180   930
100(9        72   160(5
            ----
            900
```

Moreover, *Falls* may be reduced into *Poles*, and *Poles* into *Falls*; or *Scots* Meaſure into *Engliſh*, or *Engliſh* into *Scots*; one *Superficies* is to another, as the Squares of their like Sides; therefore as the Square of 16. 5. (the *Engliſh*) is to the Square of 18. 5. (the *Scots*) ſo is the Content in *Scots Acres* or *Falls*, to the Content in *Engliſh Acres* or *Poles*

Example, The Square of 16. 5. (*i. e.* 16. 5. multiplied in it ſelf) is 272. 25. and the Square of 18. 5. is 342. 25. And as 272. 25. is to 342. 25. ſo is 930. 25. (the Content of the ſaid *Plot* in Falls or *Scots* Meaſure) to 1169. 43¼ *ferè*, its Content in Poles or *Engliſh* Meaſure. This I thought fit to mention, to let any ſee that knows not the Difference betwixt the *Engliſh* Meaſure and ours.

Secondly, An *Oblong Square* or *Parallelogram* [ſee *Fig.* 19.] by multiplying the Breadth by the Length; *a. d.* or *b. c.* is its Length, and *a. b.* or *d. c.* its Breadth.

Thirdly, A *Triangle* [ſee *Fig.* 20.] all *Triangles* are meaſured by multiplying the whole *Baſe*, by half the Perpendicular or whole Perpendicular by half the *Baſe*; *a. b.* is *Baſe*, and *i. c.* the Perpendicular, or without the Perpendicular at all, add up all the Sides, and take half the Sum, from this half Sum take every Side, which call the three Differences, multiply theſe three Differences and the half Sum continually together, the Square-Root of the laſt Product ſhall be the *Area* of th *Triangle*.

Fourthly, A *Trapezia* [ſee *Fig*. 21.] is reduced into two *Triangles*, and meaſured accordingly.

Fifthly, And ſo is any irregular ſtraight line *Figure*, and if any Side of it be crooked, draw a Line that may leave out as much as it take in: But if it cannot be meaſured within, becauſe of Obſtructions, then add on the Outſide, till you reduce it into a Square, and afte Multiplication, ſubſtract what was added, th Remainder ſhall be its *Area*.

Sixthly, A *Circle* [ſee *Fig*. 22.] is near equa to a Square made of ½ the *Diameter*, and the *Circumference* or *Periphery*; and therefor is meaſured by multiplying *a. q. c. o. b.* th *Semicircumference* by *a. d.* or *d. c.* the *Semidiameter*: And having any one given, yo may find the other by the Rule of Proportion thus,

The loweſt Number is, as 7 is to 22, ſo i the *Diameter* to the *Circumference*; or as 2 is to 7, ſo the *Circumference* to the *Diameter* Or thus, as 1 is to 3. 1416, ſo the *Diamete* to the *Circumference*; or as 3. 1416 is to 1, ſ the *Circumference* to the *Diameter*; or as 11 to 355, ſo is the *Diameter* to the *Periphery*; o as 355 to 113, ſo is the *Periphery* to the *Diameter*

In this the *Diameter* is 63 Falls, and as 7 i to 22, ſo 63 (the *Diameter)* to 198 (the *Periphery)* take ½ of the *Periphery* which is 99, an multiply by ½ *Diameter*, which is 31. 5. and the Product is 3118. 5. or as 28 is to 22, or 14 to 11, or 1 to 785399, ſo is the *Square* of the *Diameter* to the *Area* of the *Circle*; or as 22 is to 28, or 11 to 14, or 355 to 452, or 1. to 1. 273239; ſo is the *Area* of the *Circle* to the *Square* of its *Diameter*; as 1 is to 282095; ſo is the *Circle* to the Root of a *Square*, equal to the *Area* of a *Circle*; as 1 is to 707107, ſo is the *Diameter* to the Root of a *Square* to be inſcribed in a *Circle*; as 1 is to 225072, ſo is the *Periphery* to the Root of the inſcribed *Square* in the *Circle*; and as 1 is to 886227, ſo is the *Diameter* to the Root of a *Square* equal to the *Circle*, which is the ſquaring of a *Circle*.

Seventhly, The *Semicircle* is meaſured by multiplying the *Radius* or *Semidiameter* by ¼ of the *Circumference* of the whole *Circle*.

Eighthly, The *Quadrant*, or ¼ of the *Circle*, by multiplying the *Radius* by ½ of that Arch-Line, which is ⅓ of the *Periphery*.

Ninthly, To meaſure the *Segment* of a *Circle*, as *q. i. o. c.* firſt draw its *Radius* from *d.* to *o.* which conſtitutes the *Sector d. o. c.* and as the *Quadrant* hath 90 Degrees, ſo this *Sector* hath 40: Therefore ſay, as 90 is to the Content of the *Quadrant*, ſo is 40 to the Content of the *Sector*: The *Triangle d. o. i.* being ſubſtracted from the *Sectors* Content, reſts Half the *Segment*, that doubled, is the *Area* of the Whole.

To do *Geometrically*, find the Length of its Arch-Line thus [ſee *Fig.* 23.] divide the Chord-Line *a. d. c.* of that Arch into 4 equal Parts, ſet one of theſe from *c.* to *i.* on the Chord-Line, and one of them from the *Angle* at *a.* to *o.* in the Arch-Line, then draw the Line *o. i.* which Line is half the Length of the Arch-Line, *a. o. b. c.* (but if the Part of a *Circle* be greater than a *Semicircle*, then divide the Arch-Line into two equal Parts, and find the Length of one of theſe as is taught, which doubled, is the half Length of the Whole) here take the half of the Arch-Line of *Fig.* 23. and multiply by its *Radius e. b.* the Product is the *Area* of the *Segment a. b. c. d.* and the *Triangle a. c. e.* which *Triangle* muſt be ſubſtracted therefrom, and the Remainder is the *Area* of the *Segment*.

Tenthly, If you would meaſure the *Oval*, then obſerve the Rules in meaſuring the *Segment*, ſeeing the *Oval* is made of *Segments*; if it be from two *Centers*, then its but two *Segments*; if from four, then it is four *Segments* and a *Quadrangle*.

Eleventhly, Regular *Polygons*, are ſuch Figures as conſiſts of equal Sides and Angles; and which may be inſcribed in a Circle, or circumſcribed about a Circle, whether *Pentagon* five ſided, *Hexagon* ſix ſided, *Heptagon*, *Octagon*, *Nonagon*, *Decagon*, *Dodecagon*, for any of theſe, take half the Compaſs about, and the Perpendicular drawn from the Centre to the Middle of one of the Sides, multiply the one by the other, and that gives the Content.

Twelfthly, To meaſure any irregular Figure, conſiſting of ſtraight and circular Lines, the Arches and Angles bending inwards: If you cannot reduce them into ſome of the Figures above-mentioned within it ſelf, you may do it by drawing Lines without; and after you have multiplied, ſubſtract what was added (whether *Segments* or other) and there will remain the *Area* of the Figure propoſed.

Mountains and Valleys are beſt reduced into *Triangles*, and ſo meaſured; for albeit they make rather ſpherical than plain *Triangles*, yet the Way of Menſuration differs not; yet as in plain *Trapezias*, there are other Ways than by *Triangles* (as taking the Half of both Ends and Sides added for the Mean Breadth and Length) ſo for Mounts and Valleys, *viz.* Meaſure the Circuit or Baſe-Part of the Mountain and its Top, add them together, and take Half of that Sum for the Length; do ſo with the Aſcenſe (or going up from Foot to Top) of two Sides of the Hill, add the Meaſure of the longeſt and ſhorteſt Side together, taking the Half thereof for the Breadth, and multiply the one by the other, that gives the Superficies of the Mount or Hill.

And as you meaſured the Compaſs of the Foot of the Hill, ſo muſt you round the Circuit or Compaſs of the Height of the Valley or Glen; and as you meaſured the Top of the Mountain, ſo muſt you the Bottom of the Depth of the Valley; add them together, and take Half thereof for the Breadth: Likewiſe as you meaſured the Aſcenſe of both Sides of the Hill, ſo muſt you the Deſcenſe or going down of both Sides to the Bottom of the Valley; add them together, and take Half for the Length, and ſo multiply as before.

3. Albeit I have ſaid enough anent *Meaſuring Land*, yet there is much more required in *Dividing* and *Laying* out the ſame.

The firſt Time I ſaw the Need of it, was in making an *Avenue* of great Length, which croſſed a March ſeveral times, which did take in ſeveral Pieces of Land, and caſt out others; but none of them being equal, neither in Shape nor Proportion, I behoved to meaſure both, and then cut off ſo much as might balance, and that from Parts aſſigned.

As firſt, if from the *Triangle a. b. c.* (being *Fig.* 24.) which contains 870 Falls Square, you would cut off 300 Falls Square, then finding the *Baſe c. b.* of this *Triangle* to be 58 Falls long; ſay, if 870 Falls (the whole Plot) have 58 for its *Baſe*; what will 300 (the Part I deſire off) have for its *Baſe*.

Anſwer 20, therefore meaſure alongſt 20 Falls on the *Basb* from one End thereof, as from *b.* to *d.* then draw the Line *a. d.* ſo ſhall *a. b. d.* contain 300 Falls, and *a. d. c.* 570. Or

		300
	1	58
	17400(20	2400
	8770	1500
	8	17400

If it be required to take off Part from a *Triangle*, according to any Proportion given, by a Line drawn parallel to any of the Sides aſſigned, as let *a. b. c.* (which is *Fig.* 25.) be a *Triangle* containing 7 Acres, or 1120 Falls; and it is deſired that 2 Acres be cut off by a Line drawn parallel to *a. c.* its *Baſe* Line is 57 Falls, which you muſt divide in Proportion; as 5 is to 2 in the Point *d.* then ſeek the Mean proportional between *b. d.* 42. and *b. c.* 57: as *b. f.* $48\frac{80}{97}$. But having (as in the End of this *Chap.*) ſhewed how to find mean Proportionals *Arithmetically*, I ſhall here ſhew you how to do *Geometrically*.

Therefore deſcribe the Semicircle *b. e. c.* and at the Point *d.* on the *Baſe* Line, raiſe the Perpendicular *d. e.* cutting the Arch Line in *e.* then ſet the Length of *b. e.* (which is the Mean proportional) from *b.* on the *Diameter* Line, and that will reach to the Point *f.* now from the Point at *f.* take the neareſt Diſtance to the Line *c. a.* and ſet that Diſtance ſquare off at *a.* to *G.* then draw the Line *G. f.* exactly parallel to *a. c.* ſo will the *Triangle G. b. f.* be five Acres, and G *f. c. a.* two Acres, the Thing propounded.

If you would cut off ſome Part from Square parallel to one Side, you need onl meaſure that Side whence you deſign to tak it at, and divide the Parts you are to take o thereby, and the *Quotient* ſhall tell how muc you muſt ſet off. *Example*, By *Fig.* 19. 'ti an *Oblong Square*, denominated *a. b. c. d.* deſire 3 Acres, or 480 Falls, cut off at, an parallel to the Side *a b*, which Side is 3 Falls, divide 480 (the Part you are to cut off by 32, (the Side of the Square) and the *Qu*-*tient* will be 15, therefore ſet off 15 Fall from *a* to *e*, and from *b* to *f*, and the Squar *a b f e* is 3 Acres, as was required.

But if its Sides did not ſquare off, as th *Trapezia* 21, then reduce the *Trapezia* int a *Triangle*, and divide the *Baſe* into ſo many equal or unequal Parts (as you would hav the *Trapezia* into) then find a Mean Proportion between the extream Points of the *Baſe*, and every particular Point in the *Baſe*, from which Means draw Lines through the *Trapezia* parallel to the Side aſſigned, which may anſwer your requiring. Or

A more ready Way to work on Ground, is to find the mid Line of the Ground you are to cut off, and divide thereby, &c. But the Queſtion is. How to effect this? You may firſt ſet off the Whole in two *Triangles*, *viz.* I you would cut off 160 Falls at the End *a b* o

Fig. 21. then ſet off the Half thereof at the Angle *c a b*, to cut the Line *a c* by the firſt, for you will find that as the *Triangle c a b* contains 364 Falls, ſo muſt you go 7⅔ from *a* to *e* on that *Baſe*, to draw the Line *b e*, that cuts off the *Triangle a b e*, containing 80 Falls. Likewiſe, as the *Triangle d e b* contains 165½, ſo muſt you go from *b* to *f*, that *a b e f* may contain 160 Falls: Only the Line *e f* is not parallel to *a b*, therefore as *b f* is five longer than *a e*, ſet two ½ out from *e* to G, and in from *f* to *h*, and draw the Line G *h* parallel to *a b*, and ſo leave as much out as it takes in, then find the Length of the mid Line betwixt *a b*, and G *h*, *viz. i k*, which is 16, and by the ſame divide 160, the *Quotient* ſhall be 10. And that will reach from *a* to G, and from *b* to *h*, ſo as to cut off 160 Falls at, and parallel to the End *a b* (by the Line *G. h.*) as was deſired.

It is required to Part the *Pentagon* or *Fig.* 26. into two equal Parts from the Angle at *a*. The whole *Figure* is ten Acres, one Rood, and twelve Falls, that is, 1652 Falls, then the Half is 826, and the *Triangle a b c* is but 441, which wants 385 of the Half; therefore take 385 from the *Triangle a c d*, by the firſt Rule, and there will be added the *Triangle a c f* to the *Triangle a b c*, which will divide the Figure into two equal Parts, the Thing required.

I am deſired to ſet off a third Part of the *Hexagon* or *Fig.* 27. by a Line drawn from the Point *G*, the whole Plot is 45 Acres, and 145 Falls, or 7345 Falls, the $\frac{1}{3}$ therefore is 2448, and the *Trapezia G e f a* is but 2041. 875, which wants 407 Falls, (and the *Fraction* which is but a little more than $\frac{7}{8}$ of a Fall) wherefore I muſt take 407. 875 from the *Triangle G d e*, by the Firſt thus, If 2523. 50, the Content of the *Triangle G d e*, have for its *Baſe c d*, 62 Falls, how far muſt I go on the ſame to get off 407. 875? Anſwer, 10 $\frac{5225}{252350}$, that is, 10 Falls, and about $\frac{1}{50}$ of a Fall; the which being ſet from *e* to *h*, to draw the Line *G h*, parts off the $\frac{1}{3}$ of this irregular *Hexagon*, as was deſired.

If you were deſired to lay out any Number of Acres at Pleaſure into a *Geometrical Square*, you need only reduce them into Falls, and extract the Square Root thereof [as at the End of this *Chap.*] which is the Length of one Side, and ſo meaſure, or ſet off by a Chain. Or

If you would have it ly in a *Parallelogram* or *Oblong Square*, you may lay it out, as I directed for cutting off ſome Part from a Square parallel to one Side: For knowing how many Falls you would have into the *Oblong Square*, you may make a Side at Pleaſure (if not already confin'd to one) and divide thereby as is taught. Or

If you would make a *Triangle* to contain ſo many Acres, Roods or Falls, double the Number of Falls, then take for the *Baſe* of your *Triangle*, any Number at Pleaſure, by which divide the Double of Falls to be brought in the *Triangle*, and the *Quotient* ſhall be the Perpendicular to that *Triangle*, whoſe Content ſhall be the Number of Falls propoſed. And herein conſiſts the Reduction of Figures *Arithmetical.*

4. Perhaps you may have Occaſion to meaſure the Solidity of Earth, Timber, Trees, Stones, &c. Now to find the Superficies of Solids, as,

Firſt, The *Sphere* or *Globe*, multiply its whole Circumference by its whole *Diameter*, and that gives its ſuperficial Content: And as 7 is to 22, or 113 to 355, ſo is the *Diameters* Square to the Superficies of the *Sphere*; and ſo is the *Diameter* multiplied by the *Axis* of a *Cylinder* to its Superficies, and ſo is the half *Diameter* of a *Cone* multiplied in its Side to the Superficies of a *Cone*, and ſo the Square of the Chord of Half the *Segment* of a Sphere to the Superficies of that *Segment*.

As 1 is to 1 772454, ſo is the *Diameter* to the Root of a Square equal to the Superficies of a *Sphere*. Or as 1 is to 564189, ſo is the Circumference to the Root-Square, that ſhall be equal to the Superficies of the *Sphere*.

5. As *Superficial Meaſure* hath 144 Inches ſquare in one Foot, ſo *Solid Meaſure* hath 1728,

every ſolid Foot is like a *Die*, for what it wants either in Breadth or Thickneſs, it muſt have in Length; for 12 times 12 is 144, and 12 times 144 is 1728, the *Cubeſquare* Inches in a *Cubeſquare* Foot: Therefore,

In meaſuring a *Square Solid*, multiply its Length by its Breadth, and that Product by its Depth.

To meaſure a *Cylinder* (ſuch as a Roller) multiply the Semidiameter by the Semicircumference, and that Product by the Length.

To meaſure a *Cone (viz.* it hath a circular Baſe, and ends in a ſharp Point) take the ſuperficial Content of the Baſe, and multiply by ⅓ of the Altitude or Height.

To meaſure a *Pyramid* (*viz.* it hath an angular Baſe, and ends in a ſharp Point) make Uſe of the laſt Rule.

To meaſure a *Sphere* or *Globe*, (*viz.* a ſolid Figure every where equidiſtant from the Centre) cube the Diameter, and multiply that by 11, then divide that Product by 21, the Quotient is the ſolid Content of the *Sphere*.

As 1 is to 80604, ſo is the Diameter to the Root of a Cube equal to the *Sphere*. Or as 1 is to 256556, ſo is the Circumference to the Root Cube of a Solid, equal to the *Sphere*.

As 1 is to 523599, ſo is the Cube of the Diameter to the *Sphere*. Or as 1 is to 909856, ſo is the *Sphere* to the Cube of the Diameter.

As 1 is to 016887, ſo is the Cube of the Circumference to the *Sphere*: Or as 1 is to 59.217629, ſo is the *Sphere* to the Cube of the Circumference.

As 42 is to 22: Or 1 to 5236, ſo is the Diameter cubed to the Solidity of the *Sphere*: Or as 22 is to 42: Or 1 to 1.90986; ſo is the Solidity of the *Sphere* to its Diameter cubed.

As 28 is to 22; or 14 to 11; or 1 to 785399, ſo is the Square of the Diameter of a *Cylinder*, multiplied by its Side, to the Solidity of the *Cylinder*; and ſo is the Square of the Diameter of a *Cone* multiplied by $\frac{1}{3}$ of its Axis, to the Solidity of the *Cone*.

As 1 is to 25.1327, ſo is the Diameter cubed to a *Cylinder*.

To meaſure a *Regular Polygon*, (as a Piece of Timber hewed into 5, 6, 7, 8, *&c.* equal Sides, with both Ends alike) multiply the Semicircumference by the *Radius* or *Semidiameter*, and that Product by the Length.

To meaſure a *Truncus*, (*viz.* a *Cylinder* that leans) take the Superficies of the Circle, and adding the longer and ſhorter Sides of the *Truncus*, take the Half for the Height.

The *Sector* of a *Sphere*, is meaſured by multiplying its Superficies ſpherical by one third of the Height.

The *Segment* of a *Sphere*, meaſure it as a *Sector*, and ſubſtract from the *Sector* the Solidity of a *Con*, whoſe *Apex* is in the Centre, and *Baſe* the *Area* of the *Segment.*

The Solidity of a *Spheroid* is got, by multiplying the greateſt Circle into two Thirds of the *Axis*, about which the *Spheroid* is made.

The Solidity of the *Trunk* of a *Spheroid*, cut off with two Circles at right Angles, with the *Baſe*, ſuch as our Wine Casks are, is gotten by adding two Thirds of the *Area* of the Circle at the Bung or Middle together, and multiplying the ſame by the Length.

Irregular diſorderly Solids, are meaſured by Help of Water in a prepared Veſſel, exactly cubical, ſo large as it may contain it, according to *Archimedes*: Put the Body into the Veſſel, pour in ſo much Water as may juſt cover the ſame, and make a Mark where the Superficies of the Water touched the Veſſel, take out the ſame irregular Body, and make a ſecond Mark where the Superficies cuts the Side of the Veſſel, then take the Diſtance between the two Marks, in Inches and Parts, which multiply by the Square of the Side of the prepared Veſſel, and that Product ſhall be the Solidity of the irregular Body ſought.

6. If you would meaſure any Superficies by the Table of *Logarithms*, then ſet down the *Logarithm* of the Length and Breadth, add them together, and whatever their Sum be, the Number anſwering thereunto, is the *Area* or ſuperficial Content. Which, if they be

Falls, and you deſire to reduce them into Acres, then out of the *Logarithm* thereof, ſubſtract the *Logarithm* of 160 (the Falls in one Acre) and there ſhall remain the *Logarithm* of theContent in Acres. Or

If you would meaſure Solids by the Table, ſet down the *Logarithms* of its Length, Breadth and Depth; add them together, and the abſolute Number anſwering this *Logarithm*, is the ſolid Content required.

Alſo, by the Table you may extract the Square Root (of any Plot, Field or other Superficies) with great Eaſe and Quickneſs; thus,

Take the Half of the *Logarithm* of the given Number, whoſe Root is required, and the Number anſwering this *Logarithm* is the Square Root ſought. Or

For Extraction of the Cube Root of any Solid, take the third Part of the *Logarithm* of the given Number, whoſe Root is required, and the abſolute Number anſwering thereunto, is the Cube Root deſired.

And to find a Mean proportional (between two Numbers given by the Table) is to add the *Logarithms* of them together, and take Half: As if you would have the Mean betwixt 40. 5 and 72, thus,

The

The *Logarithm* of 40. 5 is	1.607422
The *Logarithm* of 72 is	1.857290
The Sums added	3.464712
The Half of the *Logarithm* is	1.732356

The Number anſwering this *Logarithm* is 54, for the Mean proportional.

To find 2, 3, 4, 5, *&c.* Means between any two Numbers, take their Difference, and divide it by a Number more by one than the Number of Means deſired, as if 3 Means, divide by 4, *&c.* This *Logarithmetical Quotient* added to the laſt, finds the firſt Mean next it, *&c.* as if you would have three mean Proportionals betwixt 4 and 64.

The *Logarithm* of 64 is	1.806180
The *Logarithm* of 4 is	0.602060
The Difference is	1.204120

The ¼ thereof is 0.301030, which being added to the *Logarithm* of 4, makes 0.903090 the *Logarithm* of 8 for the firſt Mean; again added to this laſt, gives 1.204120 the *Logarithm* of 16, and added to this, gives 1.505150, the *Logarithm* of 32, which 8. 16. 32. are the 3 Means betwixt 4 and 64.

But becauſe the Extraction of the Square Root is ſo needful to be known, I ſhall demonſtrate the ſame.

Example, It you were to find
he Square Root of 576, ſuppo-
ng it the Square of *Fig.* 18.
nake firſt a Daſh at every other
igure, beginning always at the
irſt towards the Right Hand,
iz. at 6 and 5, then juſt ſo ma-
y Figures will be in the *Quotient* or Root:
hen ſay, What is the Root of 5? *Anſwer,*
is the neareſt; therefore write 2 in the
uotient, and multiply the ſame, ſaying 2
imes 2 is 4, write down that under the 5,
nd ſubſtract it therefrom, ſaying, 4 from
, there remains 1; thus have you 20, the
quare Root of *G i c f* (conſidering that
here is yet one Figure to follow) and now
ou want the Square Root of the two *Ob-*
ong Squares, viz. a b G h, and *e b f d,* (out
f which you muſt ſubſtract the little Square
b i h) therefore double your *Quotient* or
Root of the Square *G i c f,* ſaying, 2 times
is 4, write this down for your *Diviſor,*
one Figure foreward, *viz.* under 17; and
uſe common *Diviſion,* ſaying, How often can
we get 4 out of 17? *Anſwer,* 4 times;
write that in the *Quotient,* and ſay, 4 times
4 is 16; that ſubſtracted from 17, remains
1: Thus have you 4, the Root of the *Oblong*
Square, out of which ſubſtract the little
Square once, becauſe you have it twice by
the former Doubling the *Oblong Square*;
therefore multiply the Side of the little Square,
viz.

11
$\dot{5}7\dot{6}$(24
44$\dot{6}$
1

viz. 4 in it ſelf, that makes 16; ſubſtract th ſame from 16, and there remains nothing ſo 24 is the Square Root or Side *a b*, whoſ Square is 576.

Example, 2d, If the Square of this Plot b 543169, make the Daſhes as before, *viz* under 9 14, and ſay, What is the Square o 54? (the Daſhes ſo directs, and not to 5 therefore mind the Uſefulneſs of them) Now the neareſt Square Root of 54 is 7: But as in *Diviſion*, ſo you muſt look, if you will get the Double thereof out of the Remainders, and the little Square too: If you mind this, you cannot go wrong. But, upon Trial, I find it will ſo work; therefore, ſet 7 in the *Quotient*, and multiply the ſame, it makes 49, write that down under 54; ſubſtract, and there remains 5 This tells that the Root of the large Square is 700; (conſidering that there is yet two Figures to follow, as appears by the three Daſhes) now, double your *Quotient*, that makes 14, (this is the Length of the two *Oblong Squares*) place the ſame as in *Diviſion*, and ſay, How often can we get 14 out of 53? *Anſwer*, 3 times, and 11 remaining: Now, ſubſtract the little Square, whoſe Side is 3, thus, 3 times 3 is 9, from 111 remains 102. There is the Root of other two

```
   13
   204
  15124
  543169(737
  . . .
  494969
   1144
```

blong Squares wanting, therefore double the hole *Quotient a b* 73, that makes 146; lace the ſame as before, for *Diviſion*, and y, How often can we get 146 out of 026? Or gradually, How often one in o? We get 9 Ones in 10, but not 9 fours n 12 which will remain. Then try if we an have 8: No, therefore take 7, and ſet n the *Quotient*, as before in common *Divi- on, viz.* 7 times one from 10, remains 3; nd 7 times four from 32, remains 4; and 7 imes ſix from 46, remains 4. *Laſtly*, Subract the little Square, *viz*, 7 times 7 from 9. there remains nothing; ſo the Square Root f 543169 is 737.

And if the Number be never ſo great, you ay obſerve, That the *Firſt Operation* conſts of Three Parts, (*i. e. Firſt*, Finding the oot of the great Square. *Secondly*, The oot of the *Oblongs*, by doubling the *Quoti- nt*, and uſing common *Diviſion*. *Thirdly*, ubſtracting the little Square, for the Reaons above demonſtrated. The *Second Ope- ation*, (if there be more than one, as in his laſt Example) conſiſts of Two Parts, *iz. Firſt*, The Doubling the whole *Quoti- nt* for your *Diviſor*, by which you divide our *Dividend*, as in common. *Secondly*, he ſubſtracting the little Square; (wheref the laſt Figure in the *Quotient* is always e Root) and henceforth in every *Operation*, if never ſo many, you muſt always now proceed as in the *Second Operation.*

But to find the Square Root of a Numbe conſiſting of whole Numbers and Fractions, as 930.25, the Square of *Figure* 18; work as if all were whole Numbers, as before, until one Figure of your *Diviſor* come under the *Fraction* of your *Dividen* and then the reſt of the *Quotient* is *Fractio* as in the *Example* is plain.

930.25(30.
96005
62

But to find the Root of a Number, tha is not a Square Number, as 19, four is the neareſt, and there remains 3. Now, how to know the Denominator of this Numerator, is to double the *Quotient*, and add one to it, and that is always the Denominator to any *Fraction* happening in Roots, here the Root of 19 is $4\frac{3}{9}$.

3
19($4\frac{3}{9}$
16

I have given you the *Geometrical Demonſtration* of the Square Root, which ſhews th Reaſon of its *Arithmetical Operation*; an this I could never find in any Book.

I confeſs, I need to apologize for theſe an the like Digreſſions, but the earneſt Deſir of ſeverals forced me.

Place the FIGURES here.

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THE
SECOND PART
OF THE
Scots Gard'ner
Treating of
The Culture of Plants.

CHAP. I.

Of the ſeveral Ways of Propagation.

I AM not to deſcribe the Varieties in the *Tribes* and *Kindreds* of *Plants*, (ſeeing I am not now writing a *Herbal*) but only what is moſt material to their *Propagation* and *Improvement*: Wherefore I ſhall ſhew,

Firſt, In general, the ſeveral Ways of Propagation; and then particularly ſome of the moſt uſeful.

Secondly, The ſeveral Ways of encreaſing them, are,

Firſt, By Seeds, *Kyes*, *Kirnels*, *Nuts*, *Stones*.

Secondly, By Off-ſets, *Suckers*, *Slivings* taken from the *Mother-Plant*.

Thirdly, By Cuttings, *Stems*, *Slips* ſet without Roots.

Fourthly, By laying the Branch of a growing *Plant* down into the Earth.

Fifthly, By carrying up Soil to it, where it will not bend down.

Sixthly, By various Ways of Graffings.

Laſtly, By ſeveral Ways of Inoculation.

The Buſineſs of this *Chapter* is, to ſhew the Manner and Time of performing each of theſe Ways.

Thirdly, And firſt by Seeds, choiſe them from the faireſt *Plants*, full ripe, the Day fair, and *Plants* dry. Lay them in the Sun and open Air a little, ſome for rubbing out, others for winning in their *Husks*: And as you ſhould not ſow *Fruits*, *Kirnels*, *Nuts* or *Stones*, with the fleſhly Part on, (but eat or rub it off by rolling in Sand, and then dry them a little) ſo neither waſh, wet or ſteep them: Neither keep any long after they are ripe, the moſt Part will keep till *Spring*, but then many will ly till the next, eſpecially *ſtony Seeds*, *Berries* and *Kirnels*: I do not mean *Aſh*, *Holly*, *Yew*, *Mezeriom*, *Hawthorn*, &c. who naturally lies a Year longer, albeit

lbeit ſowen immediately when gathered; yet even ſome of theſe, namely, the *Holly*, vill ly ſometimes a Year longer than their uſual Time, if the fleſhy Part be not rubbed off.

I might ſay ſomething of the timely intering *Tulips*, and others: But I come to the Manner of ſowing, which is,

To cover the Seed with the Mould, whereof there is ſeveral Models, according to the Nature of the Seed, Soil, Seaſon or Fancy, either to ſow the Ground and turn the Seed in under the Furrow, or by drawing Trenches in the Soil, and then drawing the Earth over them with a Haw, or ſowing the Bed ready dreſt, and hacking in the Seed with the ſame Inſtrument; or by harrowing, raking with a Rake, or drawing Buſhes over the ſowed Ground to cover the Seed, or to put off the Surface of the whole Bed with the Rake Head, and ſow thereon, then draw on the Mould again with the ſame, and having caſt up the Furrows with a Shovel, ſmooth the Bed with the Rake, or make Drills by Lines in made up Beds, ſow and cover the ſame with the Rake Head, not diſordering the Ranks, or to ſet the ſingle Seeds with Sticks by Lines; or to ſow the Bed, and then to ſift fine Mould thereon, &c.

Sow the ſtrong and hardy deeper than the ſmall and tender, and ſow ebber at *Spring* than before *Winter*, and deeper in a light than a ſtiff Soil.

Albeit I uſe for the moſt Part to plant and ſow every Species by themſelves, yet you may ſometimes uſe Mixtures, as *Carrots* and *Radiſh* in one Bed, becauſe the *Radiſh* may be gone ere the *Carrots* require much Room: Among new ſet *Liquoriſh*, ſow *Onions*, *Radiſh*, *Lettice*, and you may ſow *Radiſh*, *Lettice*, *Parſly*, *Carrats*, *Parſneeps* together, gathering each in their Seaſons, the *Parſneeps* wil ſtay till *Winter*, and drop *Beat-Rave* or *Parſly* in your *Onion* Beds, to ſtay *Winter*, after *Onions* are gone: Alſo *Beat-Rave*, *Skirrets*, *Beans*, at conſiderable Diſtance in the Intervals of new planted *Artichocks*, alſo at a great Diſtance among *Cabbages*, or in the Edge of the Furrows of other Beds.

The moſt natural Time for ſowing is, whe the Seeds of their own Accord falls into the Ground; nevertheleſs, that many doth well at this Seaſon, as ſtony Seeds, and ſuch as can endure *Winter*, yet the tender, which are many with us, doth beſt in the *Spring*; but for Convenience, we ſow at ſeveral other *Seaſons* as in *Summer* (at which Time they require watering and ſhade) and in *Autumn* (which is the only Seaſon for ſome) who, if tender requires Defence and Shelter; nor can we have others early at *Spring*, without hot Beds which is required in ſpecial by ſuch as come not to Perfection in our ſhort *Summer*.

Endeavour to ſow when the Soil is in good Temper, a hot Furrow is good, but ſome Grounds will not harrow or rake when new delv'd or plow'd, which when expoſed ſometime to Air, Froſt, Sun and Showers, doth crumble and fall tender; hence ought ſuch to be prepared by fallowing; ſee more particularly the Manner and Seaſon for each Sort in their reſpective *Chapters* following.

Fourthly, *Suckers* are theſe which grows, runs, ſprings off, or about the *Mother-Plant*, whereof is made Off-ſets, by ſevering or parting them off therefrom.

Take off theſe on Trees and Shrubs, with a violent, but cleanly Pull, be careful of *Bulbo* Roots and *Anemonies*, that you wound not the *Mother-Plant*.

To force ſuch as are unapt, to put forth *Suckers* naturally, you may bare the Root, (of theſe of a Woody Subſtance) cut it into the Pith, ſlit it down a little, and put in a Stick to keep the Gape open; level in the Earth again, ſo ſhall that Lip raiſed ſpring, (and ſo much the better, if there was an Eye immediately below the Cut:) When the Branches are grown, cut off this *Plant* to live by it ſelf.

Another Way is to cut the Root through, a little Diſtance from the Tree, with a cleanly Slop downwards, and raiſe up the But-end of the Root, ſo cut off till it be a little above the Surface; as for Root-Graffing hereafter deſcribed, level in and trade the Earth again, ſo ſhall the Piece left at the Tree ſend forth young Roots, and the Root ſo cut and raiſed ſend out a Top.

Better Earth for *Bulks* and other Roots, will aſſiſt them to put forth *Suckers.*

Cutting the Tops of *Fibrous* rooted Herbs, in growing Time will help them to Off-ſets, and to laſt long too.

The Seaſon for ſevering Off-ſets of hardy Trees that loſe the Leaf, is latter End of *October*, and Beginning of *November*, albeit you may alſo any Time till *March*, Weather open.

Young tender Trees, with hardy Greens, let the *Winter* Froſt be over, and before the Sap riſe. *April* beſt for Greens

Bulbo and *Tuberous* Roots, when they have done ſpringing, *i. e.* their Stalks and Leaves beginning to wither.

All *Fibrous* rooted Herbs, when ſpringing, and before they run up to flower, albeit you may plant many after the Flower is paſt, Stalks and Leaves cut, and they ſpringing afreſh. But the firſt Spring is beſt.

If Drought, water *Shrubs* and *Fibrous* rooted *Plants* upon their firſt Planting, at leaſt ſhade from the enſuing Scorchings, by covering the Surface with ſome *Vegetable* or *Leitter*, and water through the ſame if needful.

And though you muſt water *Tubro* and *Bulbo* Roots in Drought, once in two or three

Days; yet be ſparing, and defend them from too much Rains.

Fifthly, To propagate by Cuttings, is to cut off the Branch or Stem of a *Plant*, and to ſet it in the Earth without Roots.

Strip it of Leaves and Branches, plant deeper than theſe with Roots, and in a rich and moiſt Soil, keeping it watered and ſhaded, until rooted; cut off their Tops, ſave Greens, as if your cutting be 12 Inches long, let 9 be under, and 3 above Ground.

The better to effect their Rooting (if a hard Subſtance, as *Yew*, *Quince*, &c.) twiſt their Ends a little, or cleave them a Piece: If tender *Plants* of great Pith, as *Jaſmines*, *Gelly-flowers*, &c. cut only at a Joint or Knot, and plant them. If large Stems of pithy Trees, or *Poplars*, &c. ſharp their Ends down to a Point, reſerving the Bark whole on one Side.

If *Stock-Gelly-Flowers*, ſlit the Bark near the End in ſeveral Parts round the Stem, fold up the Bark ſo cut, and taking the peel'd Part cloſs off, plant the ſame with this Bark, ſpread as you do a Root.

The Time of planting Cuttings is (if Trees and Shrubs) a little before they ſpring; and if Herbs, when ſpringing, as above for Offſets; and let the Stems of *Gelly-flowers* and *Wall flowers* be well ſhot, *i. e.* ſomething firm, and take ſuch as has not had a Flower.

Sixthly, To encreaſe by Laying, is to bend down ſome Branch to the Ground, and with a hooked Stick thruſt into the Ground, ſtay the ſame in its Place, and cover with Earth of Deepneſs as you ſee fit: Let the Soil be good, watered and ſhaded in Drought, and from ſcorching Sun ſheltered in *Winter*, if needful.

To force their Rooting (if *Gelly-flowers*) prune off the under and withered Leaves, and cut it at a Joint into the Pith (*i. e.* half Way through) and ſlit it up to the next Joint, thruſt down the cut Part gently into the Ground, making it faſt, cover as before. If Trees and Shrubs, prick the Rind full of Holes at the Place interred, or cut away the Bark round at the ſame Place; but if the Branch be ſmall, uſe it as *Gelly-flowers*, and if any Refuſe, ty them hard and faſt above the Slit with a Piece Pack-Threed or Wyre, to ſtop the Sap in its Courſe, that it may provide for Rooting. Cut off all their Tops as you lay them, except Greens, and ſome very pithy Trees.

The Time for laying all Trees and Shrubs that loſe the Leaf, is *October*, as alſo *March*, if ſecured from Drought. All Greens in *April*, which therefore muſt be ſhaded. *Gelly-flowers* in *March*, *April* or *July*.

The Trees and Shrubs will be rooted that Time twelve Months, at which Time tranſplant them. The *Gelly flower* laid in *March* may be tranſplanted in *July*; or if laid in *July*, tranſplanted next *March* or *April.*

Seventhly, Circumpoſition is in all Caſes, as Laying, ſave only that the Earth muſt be raiſed up to the Branch, becauſe it will not bend down to it: Therefore faſten a Pot, Baſket, old Hat, or the like, on the Tree (by a Stake or ſome Supporter) let it have a Hole in its Bottom, through which you muſt put the Branch to be propagated, and then fill the Pot with rich Earth (having ordered the Branch, as before, to cauſe it root) and water it often: Willow Earth or rotten willow Sticks at the Bottom of the Pot, helps to retain the Moiſture. I have effected this with Clay and Cows Dung well mixt (after Part of the Bark has been taken off round) clapt about with a double or triple ſwaddling of Straw or Hay Ropes.

This is a *Midſummer* as well as *Spring* Work, and very notable for to propagate ſuch as can ſcarcely be otherwiſe obtain'd.

Eighthly, Graffing is to take a Cyon or Twig of a Tree, and place into another (call'd the Stock) fit to receive the ſame, that the inward Bark or Rind of both may join, and Saps unite, *&c.* Whereof there be ſeveral Ways, as,

Firſt, Of graffing in the Clift, ſaw off the Head of the Stock in a ſmooth Place, about Half a Foot above Ground, for *Dwarfs* and *Wall-Trees*; as alſo for *Standard*, *Apple* and

Pear (for they will ſhoot up for a Body) but betwixt 3 and 4 Foot for *Standard-Cherry* and *Plumb.* Pare ſmooth its Head raggled by the Saw, then cleave it a little beſide the Pith, and with your Pen-knife cut away any Jags, Roughneſs or Blackneſs that remains after cleaving on each Side the Clift within; then prepare the Graff, by cutting on both Sides from ſome Knot or Bud in Form of a Wedge, ſuitable to the Clift, with little Shoulderings, not raggling the End: For if the Bark be raiſed at the Tail or lower End of the Graff (eſpecially the *Cherry)* impedes its growing; cut off its Top about 2 Inches above the Shoulderings, cloſe behind a Leaf bud, then open the Clift with the Graffing Iron, ſet the Graff (or two Graffs if the Stock be great) in the Clift, ſo as the inward Part of the Rind of the Graff may join exactly and cloſs to the inward Part of the Bark of the Stock, and if it pinch, as great Stocks will, ty it not as you muſt do the ſmaller: Or put in a little Wedge gently to keep it, take a Slice bark (from the cut off Head) and cut a Hole therein, as it may ſlide on, and join round the Put of the Graff, and cover the Stock cloſs over in Form of a *Hawks* Hood. *Laſtly*, Cover with Clay tempered with Horſe Dung, that hath a little ſhort *Leitter* in it, or with ſoft Wax for ſmaller Stocks: This is to preſerve it from cold and drying Wind, and from Wet which harms moſt.

Note, If the Stock ſtand perpendicular, ſet the Graff on the *Weſt* Side; if not, then place it on the upper Side: If you fear Winds, ſupport them with Sticks, as Splinters to a broken Bone.

Unbind when you find their Bands harm them, towards *Midſummer*, at which Time top ſuch as has ſhot ſo large as to be in Danger of breaking with the Winds, eſpecially them graffed in the Bark, hereafter deſcribed.

Pull up *Suckers* cloſe and cleanly from the Roots, alſo rub off Buds that appear on the Stock. Graffs cannot thrive or proſper, if the Stocks be uncleanly or illthriving, and this is occaſion'd through bad training.

Another Way of Clift-graffing is, to cleave the Graff and not the Stock; thus, prepare the Stock and Graff as for ſhouldering (next deſcribed) then with the Pen knife cleave the inward Face of the Graff in the cut Part, and cut up the Stock with a Slop, ſo that one Lip of the Clift Cyon may be bound on the one Side of the Stock, and the other longer Lip on the Outſide, as in ſhouldering.

The Graff ſits here, as on a Saddle, with a Leg on each Side the Stock, and therefore will better reſiſt the Winds; as alſo, the Wound cauſed by the Clift will ſooner recover. I have them wholly healed the ſame Year wherein I graffed them.

Shouldering is to cut off the Head of the Stock, and ſmooth it as at firſt; then cut the Graff from a Knot or Bud on one Side, ſloping about an Inch and a Half long, with a Shoulder, but not deep, that it may reſt on the Head of the Stock: The Graff muſt be cut from the Shoulder ſmooth and even, ſloping gradually, that the lower End be thin; place the ſhouldering on the Head of the Stock, and mark by the End of the cut Part of the Graff, and cut away ſo much Bark of the Stock as the Graff did cover; then Place both together, that the cut Parts of both may join, and Saps unite one on the other; bind them cloſs together with Baſs, and hood them with Clay tempered with Dung or Wax, as before.

Graffing in the Bark may be uſed in greater Stocks, or in Re-graffing of old Trees, and is only for *Apples*, becauſe later in performing, which may be the later End of *April*, when the Bark of the Stock will peel; for when both Stock and Graff is prepared (as in ſhouldering) inſtead of cutting away ſome Bark off the Stock; for receiving the Graff, you muſt ſlit it on the *South* Side from the Top, almoſt as long as the ſloped Part of the Graff, and looſen the Bark at the Top of the Slit, with the Point of the half round Wedge (made a Purpoſe, tapering downwards to a Point) which alſo thruſt down between the Bark and Stock, to make Room for the Graff;

but firſt cut a little Bark at the thin End of the Slop of the *Cyon*, that it double not in going down, yet leave it with a ſharp Edge; and becauſe when the *Cyon* is put in, it will bear the Bark hollow from the Stock-Nick or Slit, the Bark on each Side the *Cyon*, ſo that it may fall cloſs to the Stock, and to the Edges of the *Cyon*, then bind and cover as before.

Graffing by Approach, is good for theſe that holds not well otherwiſe; but herein the Stocks muſt be placed ſo near the Tree (where the Graffs are) that the Branch may reach it, then may you clift or ſhoulder-graff the Twig you mean to propagate into the Stock; and aſſoon as Graff and Stock do unite and are incorporated together, cut off the *Cyon* or Graff underneath, cloſe to the graffed Place, that it may ſubſiſt by the Stock only.

Root graffing is, to take the Twig of any Tree you mean to propagate, and a Piece Root of the ſame Kind (cut and raiſed up a little as in *Sect*. 4.) and graff them by ſhouldering, uniting the But-ends of *Graff* and *Root*, cauſing the Rind of the Root join to the Rind of the *Graff*, and ſo bind them: The next Year they may be tranſplanted to Nurſery; theſe will be eaſily *dwarfed*, and readily hold; beſide that the Defect of Stocks are ſupplied, and they fit for Tranſportation.

There be many other Ways, but theſe nam'd are the moſt material.

The Time of Graffing is, when the *Sap* begins to ſtir in the *Spring*; you muſt begin earlier with *Cherries*, *Plumbs*, ſome later with *Pears*, ending with *Apples*.

Choiſe not your *Graffs* from ſuch Trees as are Ill-bearers, neither from ſuch as has not come to bear at all, but from conſtant and well bearing Trees, and the faireſt and fulleſt of Buds thereon: Let them have a Piece of the precedent Years Shot, whereof make the Tail and Shouldering immediately below the But of young Wood; and if the Stock be large, make the *Graffs* wholly of the laſt Years Shot; and ſuch (having blowing Buds actually upon them) I have ſeen bear Fruit the ſame Year. But ſome old bearing Trees yields no *Graffs*, wherefore you may cut out ſome great Branch, that it may ſhoot anew, or rather take off the ſame Branch by Circumpoſition, and plant; the which new Tree may furniſh you with *Graffs*. Cut your *Graffs* ere they ſprout, and keep them or carry them, their Ends in Clay, or dry in a Box, their Tops cuts off.

Ninthly, Inoculation differs from the former Ways of Graffing, and moſt proper for *Apricocks* and *Peaches*; any Sort will more readily hold by this than by Graffing, except *Cherries*; they come quickly to be a Tree: For I had a *Plumb* ſhoot above 6 Foot, 10 Inches the firſt Year; and tho' they miſs, yet the Stock is not the worſe. Therefore,

In ſome convenient and ſmooth Part of the
tock (at the ſame Height as for Graffing)
ith the Pen-knife cut the Rind overthwart,
nd from the Middle thereof, gently ſlit the
ark about an Inch long, in Form of *a T*,
ot wounding the Stock; then nimbly pre-
are the Bud, by cutting off the Leaf till a
ittle of the Tail, then ſlit the Bark on each
ide, a little Diſtance from the Bud, and a-
out half an Inch above and below the ſame,
harp that End below, that it may the more
aſily go down, and having a Quill, cut more
han half Way about an Inch long at the End
for dividing the Bud and Rind from the Stalk)
herewith take it off dexterouſly, and leave
ot the Root behind; for if you ſee a Hole un-
er the Bud on the Inſide, the Root is gone,
aſt it away, and prepare another when the
ud is ready, then with a Bone (made half
ound, and ſharp at the Point, tapering on the
ne Side) raiſe the Bark or Rind on each Side
he Slit carefully, not hurting the inner Rind,
nd with Care put in the Bud, thruſting it
own till its Top join with the Croſs cut; then
ind it cloſs above and below the Bud, with
ried *Ruſhes* or *Baſs*. Or,

You may ſlit the Bark of the Stock upwards
rom the Croſs cut. Or,

Cut the Edges of the Bark about the Bud
blong Square, and the Bark of the Stock fit
o receive the ſame. Or,

Reſerve ⅓ of this ſquare piece Bark of the Stock untaken off at the upper End, which muſt be raiſed, that the Shild may ſlide up betwixt the ſame and the Stock, and ſo bind gently as before.

The Time for Inoculation is, when the Sap is moſt in the Stock, namely from *June* till *Auguſt*, near a Month after unbind, *i. e.* cut through Binding and Bark, with a gentle Slit on the Back-ſide of the Stock, leaving the Binding to fall away of its own Accord, at which Time you will ſee who holds. In *March* following, cut off the Head of the Stock 4 Inches above the Bud, and that Time twelve Months the Stub too, that it may heal over the Wound. You may prune as *Graffs*, and pull up *Suckers*, &c. ſee *Chap*. IV. for more.

Choiſe Buds from good Bearers, as before, take them from the ſtrong and well grown Shoots of the ſame Year, and from the biggeſt End of the ſame; and if you muſt carry them far, firſt cut off their Leaves and Top of the Stalks, and wrap them in moiſt Leaves or Graſs.

This much at preſent in general, for Time and Manner of the ſeveral Ways of Propagation.

Tenthly, In planting all *Plants*, prune their Roots, that is, Top them a little with a ſharp Knife, except *Aſparagus*. Alſo cut their Heads, except *Greens*, and Tops of *Forreſt Trees* ordained for Timber, yet the Side-Boughs moſt, that the Head may be proportion'd to the Root.

Plant no Trees deep (albeit ſome deeper than other) when their Roots runs near the Surface, there they receive the beneficial Influence of Sun and Showers that makes *Vegetables* fair and fruitful.

Lay *Leitter*, or the like, above Ground, the Compaſs of their Roots, eſpecially the firſt Year of Planting: And indeed all Plants require ſome Shelter and Shade with Moiſture, when firſt planted, till they get Rooting and Strength.

Cut the Leaves and Stalks of Flowers and Herbs, when paſt flower or yielding Seed, nor at any Time ſuffer too many, rather purge them in Time. No more Branches, Flowers, Fruits, on any Treee or Plant than the Root can nouriſh perfectly.

Neither plant and ſow every Year the ſame Plants on the ſame Ridge or Bed, for it improves them to be changed; ſee more fully *planting*, *pruning*, *preſerving*, &c. in their reſpective Places following.

* * *

CHAP.

CHAP. II.

How to Cultivate and Prepare Grounds.

Firſt, HAVING ſhew'd the ſeveral Ways of *propagating Plants*, it is alſo moſt requiſite that you *prepare the Ground* for effectuating the ſame. And that is in the firſt Place,

To trench it, *viz.* Begin at one End of the Ground (you mean thus to culture and open) a Trench from one Side to the other thereof 3 or 4 Foot broad, and from one to two Foot deep, as the Quality of the Ground admits, and *Plants* require (therefore *Liquoriſh* muſt have deeper) this being open, meaſure off other 4 Foot parallel at its Side, turn that into the open Trench, with the Turf or Surface in the Bottom, and the clean Earth on the Top; the filling whereof emptieth another, therefore cut off other 4 Foot, and turn that in as before; thus Trench by Trench till the whole be finiſhed. I preſume you carried the Earth of the firſt Trench to fill the laſt; or otherwiſe filled Hollows therewith, and left the laſt Trench open (if convenient) for receiving Weeds. Or if the Ground be hollow in the Middle, begin there, and trench both Ways to help the Level; if high in the Middle, begin at both Sides or Ends, till the two open Trenches meet at the Height, for the ſame Reaſon.

The latter End of *Harveſt* the Ground is ſofteſt for trenching, and it lying all *Winter* open to the Weather is thereby meliorated: For as trenching doth well prepare hard, barren and untoil'd Ground, ſo doth it ſuch as is exhauſted by long and unskilful Uſage; and if at every trenching you apply proper Manures mixt with the ſecond Spading, or under the laſt Shovelling, and in 5 Years re-trench, it will become to your Wiſh, for all Gardens and Plantations.

Secondly, The next excellent Way of preparing Ground, is the fallowing, begin aſſoon as you reap the Crop, but let the Ground be ſomething moiſt, albeit you ſhould ſtay for a Shower; if this be not late in *Autumn*, you may Fallow in *November*, eſpecially if ſtiff Ground, and reſtir in *March* or *April* when you plant or ſow; and albeit you ſhould neither plant or ſow it that Year, keep it clean of Weeds in *Summer* by Hawing, *&c.* and at *Autumn* Fallow again; but as in Trenching, ſo in this Work you ſhould mix with proper Soil.

Make uſe of the *Engliſh* Faſhion of Spades which are now common, and let every two Delvers have a Shoveller to caſt up the ſmall that Falls in the Bottom of the Furrow, and the Delvers ſhould turn up the Point of the Spade, and nimbly break and chop all the Clods throughly; this is very material as well as the through mixing of the Manures with the Soil; ſo that mixing, ſtirring, reſtirring, fallowing, is moſt pertinent for the cold, chilled, barren, rugged natur'd Ground in *Scotland*, all which ſoftens and tenders it, and ſo fits it for nouriſhing good Seeds and Plants, as I can tell by Experience: Therefore,

Thirdly, I adviſe our Husband-Men alſo to the Fallowing of their Land as one: Slitfolding the ſame, as a ſecond: Watering or overflowing Land, as a third: Burning the Turf, as a fourth: Draining exceſſive Moiſture, as a fifth: Applying proper Soils and Manures, and that at proper Seaſons, as a ſixth: Laying the Land to Reſt, as a ſeventh: And above all, Incloſing and Planting about their Land, as the laſt and beſt Improvement.

Example, At the *Autumnal* Fallowing, delve or plow deep, and apply hot unrotted and uncompound Dungs and Manures; at *Spring* re-plow or re-delve, and apply ſuch Dungs and Manures as has lien mixed and rotted with Earth; then mix, rake or harrow. The *Summer* following is to deſtroy the Weeds, and may be done by Turf, Plough or by Hawing.

The Husband-Mens Slitfolding is equivalent to *Gard'ners* covering the Surface, eſpecially of dry and barren Ground with *Leitter*, &c. The Dung and Urine of Sheep and Cattle waſhes evenly into Ground, and ſhould be turned down by the *Summer* and *Autumnal* Fallowing, leſt its Subſtance exhauſt by Sun and Air (except that for *Graſs* then only harrowed with a Buſh of *Thorns)* inſtead whereof *Gard'ners* ſhould top their Coverings of *Leitter* with a little Earth or Sand, and at *Autumn* delve all down together.

Husband-Mens Watering is by running Plough Furrows (and Trenches where needful) alongſt or croſs their Land, ſo as the Water may gently ſwim over the Whole: This in the *Winter* on dry and barren Grounds, which leaves ſulphureous Pinguidity behind it, and ſtrongly improves either for *Graſs* or *Corn*; but that this Husbandry ought as well to be practiſed on wet Grounds, is evident, that the Running of this carries away the ſowre Quality of the other. I ſhall ſpeak of *Gard'ners* Watering more particularly.

Burning Land is, to pare its Surface with the Turf Plough, and lay the ſame in Heaps to burn, and ſo ſpread the Aſhes: But if Moſs and Heath, ſet Fire through without Turfing it; this deſtroys the noxious ſowre Nature, and the Salt remains in the Aſhes, for the ſtrengthning the Spirit of the Earth.

Draining the wet, bogie or dropſical Ground is, by Trenches a little deeper than the Spring (how deep ſoever) and then apply

Lime, *Soot*, *Aſhes*, *Pigeons Dung*, &c. as for the abounding of ſuperficial Water, that is eaſily helped by common Water-ſewers, or in ſome Grounds by ſinking Holes down to the Channel.

As the Husbandman ſhould have his Land laid out or divided into ſeveral Cloſes, ſome for *Corn*, ſome for Meadow, and others for Paſture; ſo when he has taken five, ſix or ſeven Crops of *Corn*, he ſhould lay it out for Paſture, otherwiſe it will wear out of Heart; and likewiſe the Paſture muſt be plowed up for *Corn*, eſpecially when it begins to grow moſſie.

The Way that the *Gard'ner* turns his Ground to Reſt, is by Trenching and Retrenching, whereby it can never wear out; albeit he alſo obſerves to change the Crops as well as the Husbandman.

How to incloſe and plant about your Land, ſee *Chap*. IV.

Fourthly, Among all the Varieties of Soils, that next the Surface of them is beſt, becauſe prepared by the Influence of Sun and Showers.

That called a Loam or light brick Earth is the moſt natural Ground for Gardens and Plantations; ſtrong blue, white, or red Clays are worſt: But the nearer they be to a mixture of Loam (or if they have Stones naturally in them) they are the better; alſo the, nearer gravelly or ſandy Grounds incline to

Loam, ſo much the better. Therefore if your Ground be ſtiff, Trench with *Ferns*, *Straw*, *Bean ham*, *Thatch*, *Leitter*, *Earth under Woodſtacks*, *ſmall Sticks*, *&c.* If Gravelly or Sandy, then Trench and mix with Loam or the upper Part of Clay, the Turf of both is good.

If ſtrong Clay, Trench and mix with fat Sand, highway Earth that hath Drift-ſand in it, Rubbiſh of Buildings. Lime-rubbiſh, Gravel. And if it be for Gardens or Orchards, enrich it with Dungs mixt with Drift-ſand, or light Mould heaped up, *Stratum ſuperſtratum i. e.* laying by laying. And if the Ground be Cold, the more Pigeons and poultry Dung you put upon it, the lighter and warmer it will be. Or make *Stratums* of Earth, Dung and unſlaked Lime-ſtones to ly a Year, and then apply this Compoſition, which has been hitherto a great Secret: Therefore prize it.

Binding Grounds, which will not Rake as you Delve, if dry and hard, trenching and Fallowing expoſeth them to be ſoftned by Weather, as is ſaid: But if wet and tough, mix with Aſhes, Sea-ſand, *&c.* In Culturing.

For preparing my Compoſts, I uſe a Pit (wherein ſometimes I make a Hot-bed) oblong, about 4 Foot deep of Length and Breadth, as I can get Dungs, Vegetables, and Soils to fill it: Here to lay all Kinds or Sorts with *Stratums* of Earth, as *Horſe*, *Nolt*, *Sheep*, *Pigeons*, and *Poultry-dung*, *Ferns*, *Weeds*, *Leaves*, *Soot*, *Aſhes*, *Sticks*, *Saw-duſt*, *Feathers*,

thers, *Hair*, *Horns*, *Bones*, *Urine*, *ſcouring of Ponds*, *Ditches*, *Blood*, *Pickle*, *Brine*, *Sea-Water*, the cleanſing of *Houſe of Office*, *&c.* Let them ly a Year at leaſt, but not above two: Then take them out and there ſtir, air, mingle and work them with freſh Earth, or by themſelves, as you have occaſion, till they become ſweet and of an agreeable Scent; (yet retaining their Virtue) this frees them or the noxious Qualities they otherwiſe retain, and conſequently not ſo apt to gender or produce *Worms*, *Weeds*, and *Muſhroms*, inſtead of wholſome and pleaſant Plants, Fruits, and Roots for the Table.

5. Obſerve what Manures are proper for the Soil, as: All Hot-dungs and Manures are proper for cold, ſtiff, and moiſt Grounds: So all rotten and cold Dungs and Manures are proper for dry and hot Grounds. All Manures that retains Moiſture are for poor, ſandy and Gravelly Soils.

As, *Horſe-dung* for ſtiff and cold Ground: *Sheeps* for hot and dry; *Aſhes* for cold, ſtiff and moiſt; old *Woollen-rags* for poor dry; *Lime* moſt excellent for muiriſh and heathy Land; *Hair of Beaſts* for dry and ſtiff Grounds; *Pigeons* and *Poultry-dung* for cold and moiſt; *Rotten Saw duſt* for dry; *Rubbiſh of Buildings* for ſtiff cold Grounds; *Salt* for cold and moiſt; uſe it moderately, it deſtroys vegetables on dry Ground, eſpecially at firſt, but when melted by Winter-rains, it Fertilizeth:

Some has ſowen it on moiſt muiriſh Land to great Advantage, for being far from the Sun we have little volatile.

6. In your Applications you are to conſider, That Rotten dungs and Manures are proper for *Trees* and ſuch ſlow growing *Plants*, and Unrotten dungs and Manures for Annuals, they being quick of Digeſtion.

Let not the Root of any *Tree* ſtand on Dung, far leſs Unrotten-dung which burns them; but upon prepared and proper Soil, and compoſed, well mixed, aired, ſtirred or fallowed. Moſt fit is the cleanſings of Streets and Highways together, with the Mud and ſcouring of Pends and Ditches: If firſt layed on Heaps in the open Air to rot and ſweeten, and if you mix it with Sratums of Lime, that adds much to its Goodneſs and Fertility.

Forreſt-Trees require not ſo much Dung as *Fruit-trees*, but well mixed and fallowed Soil.

Kitchen-Herbs and *Roots*, requires very fat, light warm and well cultured Ground.

Flowers and fine *Plants* cannot endure Soil too rank with Dung, neither can they proſper if it be poor; but freſh clean Earth with rotten *Nolts dung* well beaten and mixed together, and a little rotten *Willow-earth* a little below the Roots: Here comes in that delicate Soil, the *Turf* of the Paſture mixt with a little *Lime*, *Cowes* and *Sheeps-dung*, well rotted and mingled as before. See more particularly what Soil each kind or ſort of *Plants* delights in or loves beſt, in their reſpective Chapters and Sections following.

7. As for making the *Hot-bed* for raiſing early and tender *Plants*, dig a Pit (4 Foot deep, and of Length and Breadth, as you have Occaſion) in a convenient and warm Place, lying well to the Sun and ſheltered from Winds (which you may help by Art, if not ſo naturally) fill it with *Dung* and *Leitter* from the Stables, about a Fortnights gathering, (ſome makes it of *Barley-ſtraw*, or the ſame mixt with *Bran*, becauſe it keeps Heat long, and its Heat not ſo exceſſive nor ſo noiſome to *Plants* as *Dung*) and when well Tread, and even on the Top, lay about 4 Inches thick of rich, light (but freſh and clean) ſifted Mould thereon: Arch it over with Sticks, and cover with Matts 4 or 5 Days to cauſe it Heat, then uncover and give it Air a Day or two, that its violent Heat may paſs; then ſow your *Seeds* and cover the Bed again. And the next Day if you find the Bed over Hot give it more Air, if too Cold caſt ſome *Straw* on the Covering until the Heat return; ſo by airing and covering you may keep it in a conſtant Temper: When the *Seeds* come up, give them Air to dry the Moiſture raiſed by the Heat of the Bed. How to cover the choice with Glaſſes, ſee *Chap. 6. Sect.* 1. But as there is great Trouble in rightly ordering this ſort of *Hot-bed*; ſo it is here remedied by a better, which is only to fill and tread the Pit

full of new *Dung* and *Leitter*, (not covering it with Earth) and place wooden Caſes therein, about 9 or 10 Inches Deep and about 3 Foot broad, (having Wood-handles at the Ends) bore them full of Auger or Wimble Holes at the Bottom, fill them with the foreſaid Earth; and therein ſow your *Seeds*: and theſe Caſes and the Earth in them will be kept warm during the whole Seaſon, wherein a *Hot-bed* is neceſſary, for if it loſe Heat add freſh *Dung* and *Leitter* under, about and betwixt the Caſes; (there is Dew on the Glaſſes, while the Heat remains, but if exhauſted, they will be dry) conſequently the Trouble of Tranſplanting from one *Hot-bed* to another is hereby ſaved. Provide a Shelter over the whole, if you pleaſe, and frames of Glaſs over ſome of the inſide Caſes, where there is moſt Need; others you may leave open, as your *Seeds* requires. By this your Pit and Caſes are every Year ready to your Hand, requiring only a Supply of *Freſh-dung*. But this Pit will be ſo much the more excellent, if lin'd round at the ſides with Brick: And where you cannot conveniently ſink it for Water, you may build the ſame above Ground. And when this Pit is empty, it will be alſo ready for wintering of *Flower-pots* with *Gelly Flowers*, &c.

8. In watering *Plants*, uſe not Well-water, eſpecially for *Tender-plants*, neither Rivers that run long and quick on ſharp Gravel: theſe yeild no Nouriſhment to *Plants*, but

rather chill them; therefore if you muſt uſe ſuch, let them ſtand ſometime in the Sun and open Air, uncovered in Tubs, mixt with *Dung*, and pour it off the Dreg when you uſe it. Let the Quantity and Quality of the *Dung* be according to the Nature of your *Plants* (as if great Growers and require much Heat, put Horſe or Pigeons *Dung* into the Water, but for the more dureable put *Sheeps-dung*) remembring if your Ground be bad, to add the more *Dung*.

When *Dung* lys above Ground about any *Plants*, (as I uſe to do with *Trees*, *Artichocks* &c.) The Water deſcending through the ſame, is very reliſhing to the Roots, if you pour the Water at a little Diſtance round the Tree: For when laſhed on the Stem, it waſheth the Earth from the Roots.

Water no *Plants* with ſtanding, ſtinking Ditch-water, nor no Water that ſtinketh: Rain-water and large Pond-water is excellent, but keep it not too long; yet if in a large Veſſel, the oftner you ſtir it, the longer it will keep ſweet: So the larger your Ponds or Rivers be, and the opener to the Sun and Air, and the more moving by Horſe, Geeſe and Ducks their Swiming, the ſweeter it will be. And if the waſhings of *Stables*, *Streets*, *Dung Hill-water*, *&c.* Run into them, that adds much to their Fertility, providing they have ſome moving, as is ſaid, to make them ſweet.

If you fear dry Weather defer not too long, but water while your Ground is yet moiſt; defer not, if you mind to water at all. Theſe that Root deepeſt, water moiſt, And alſo when you do begin, continue it ſo long as you find occaſion. In watering *Trees* and greater *Plants*, ſtir and waken the Earth a little about their Roots with a Fork, ſo as it may drink the more evenlier, minding to tread firm again. And for the ſame Cauſe you may ſink the Earth a little in form of a ſhallow Diſh round your *Colliefloẃers*, *Artichocks*, *&c.* Dip your Flower-pots in a Tub of Water, to drink through the Holes at the Bottom.

When you water Beds of ſmall Seeds with the Watering Pot, ſhake it nimbly, that it may fall like a ſhower of ſmall Rain. I have often made uſe of a handful of ſmall *Straw* or *Hay* drawn as *Thatch*, tyed in the middle, and at one End poured Water with a Cup, and ſhaked the ſame that it appeared like a Gentle bedewing rather than a glutting Rain.

Some that are deſirous to have the Ground always moiſt about any *Plant*, do place near it a Veſsel with Water, and in it a piece of woollen Cloth, with one End thereof hanging out to the Ground, and the other in the Water: The Cloth being firſt wet, it will drop continually, if the End without be lower than that within the Veſsel; And when the Water within fails, it may be augmented; If it drop not faſt enough, the Cloth may be increaſed, if too faſt, diminiſhed.

Early in the Spring while the Weather is yet cold, I intreat you be cautious in watering the Leaves of the young and tender *Plants*; only wet the Ground about them, when your *Plants* or *Seeds* are more hardy and the Nights yet cold, water in the forenoons: But when the Nights are warm, or Days very hot, then the Evening is the beſt Time.

Plant in wet, and ſow in dry. I do not mean over wet or over dry. Withal let them have good Air, which conduceth much to their Health and Life, without which nothing can live.

CHAP. III.

How to propagate and order Forreſt-trees.

Firſt, OMitting here the Diſtinction of Species, (having confin'd them to one Chapter) I ſhall ſpeak briefly, yet I hope plainly of their Government, thus:

Albeit the moſt of *Forreſt-trees* may be Increaſed by *Suckers*, *Layers*, *&c.* Yet if you deſire

Trees worth your while, raiſe them from the *Seed.* Therefore prepare a *Seminary* or *Seed-plot*, together with a *Nurſery* well ordered and handſomely made up in Beds, as in *Part* 1. *Chap.* 5. *Sect.* 2. And there ſow and ſet your *Seeds* and *Plants* in their reſpective Seaſons; keep them clean from Weeds, and Water them when Need is: Alſo Earth up and dibble in theſe caſt up by the Froſts, as well as ſhade and ſhelter in time of Neceſſity. Let them ſtand ſome but one, others two Years in the *Seminary* after they riſe, then remove and plant in *Nurſery*, a Foot one way and half the other diſtance, or 5. Rows in the Bed (it 6 Foot broad) in ſtraight *Lines*, having firſt prun'd their Roots, eſpecially toped the main Root that runs ſtraight down; ſo ſhall they ſend forth ſide or feeding Roots, and agree well with Tranſplanting thereafter. Alſo proportion the Head to the Root by pruning up the ſide Boughs, reſerving ſome ſmalleſt afterwards all the way on the Body, to ſtop the Sap in its Courſe, that the Tree may grow great with its Hight, and this will prove the beſt Fortification againſt the Winds.

Cut not the Tops of theſe Trees you ordain for Timber, except ſome grow crooked in the Nurſery; theſe, ſave *Greens*, may be fell'd near the Ground in the *Spring* or at *Midſummer*, and train up the ſtraighteſt Shoot again to be the Tree. When they have ſtood three Years at moſt in this Nurſery, replant them at a wider Diſtance in Spade-bit Trenches, three Foot one Way, and two the other, where they may ſtand till they be ready for planting out in your *Avenues*, *Parks*, *Groves*, &c. which will be in three Years, if thir Rules be obſerved. But if you think them yet too ſmall for ſetting out, you muſt tranſplant at a wider Diſtance, and at every Removal top all their Roots with a ſharp Knife, and thin the Side Boughs for lightning the Head; but do not prune up all, as is the Cuſtom of the Ignorants, whoſe Trees are ſo long, ſmall and Top heavy, that they cannot ſtand: But of Pruning more hereafter. If you neglect this Tranſplanting and Pruning the Top Root, while young, your Eſſays to do it when old will prove ineffectual, nor will they ever be worth the While.

All the Time that your Trees remains in Nurſery, and at leaſt the firſt and ſecond Year thereafter, be careful to cleanſe them from *Weeds* and *Suckers*, by delving, hawing, *&c.* The Advantage here will ſoon counterbalance the Coſt.

Choiſe your Seeds from the high, ſtraight, young and well thriving Trees; and the faireſt, weightieſt and brighteſt thereon; for its obſerved, that the Seeds of hollow Trees (*i. e.* Trees whoſe Pith is conſum'd) doth not fill well, or come to Perfection, as *Langford* ſays of *Pears*, concluding that the Kernells of Fruits depend much upon the Pith. And I bid you reject ſuch as was never ſet by Art, as peeviſh Parents for Children, that muſt be thus accomodate with uncouth Lodgings, as well as Dyets in their Travels: 'Tis a Miſchief in many People, that accounts all ridiculous, that they have not been bred up with, or accuſtomed unto; ſo with Trees in ſome reſpect.

Secondly, As for the *Oak*, the *Acorns* we get from puts forth a luſtier Root than ours; nor do I approve of them in natural Woods, they ripen Beginning of *October*, gather them in a dry Day, and lay in ſome open Room to dry a Month, turning them with a Broom, then lay them in a Couch, dry Sand till latter End of *February*, dibble them in the Ground two Inches deep, 12 Rows in the Bed (if 6 Foot broad) they come up the ſame Seaſon; and although they will grow on any Ground, yet they grow better on the beſt, that is, a good loamy Earth. Order them as is directed in Nurſery.

The *Elm* that grows with a clean and taper Body is beſt worthy your Care: We have extraordinary clean and ſmooth barked *Elms* from *Holland*; but I think they take more Pains in preparing and making their Earth fine, which certainly is moſt conducible thereunto. Their Seed falls Beginning of *June*, (tho' it doth not fill every Year) when they begin to fall, gather them and ſpread on a Cloth a little, then ſow them immediately promiſcuouſly over the Bed, and very thick, covered near an Inch of Earth; I had them come up within ten Days; they love a light Earth ſomething moiſt.

The *Aſh* Seed is ripe in *November* and *December*, having ſpread them a little to dry, put them in a Hole *ſtratum ſuperſtratum* of Earth and Seed; take them out at *Spring* come twelve Months, and ſow as *Elm*, for now they riſe, and loves a tender Soil, not too moiſt.

The great *Maple*, commonly, but falſly called *Plane*, its Seed is ripe in *September*; ſow it at *Spring*, it comes up that Seaſon; affects a Soil with *Aſh*, or rather better.

The ſmaller *Maple* is rather for Hedge, its Seed lies as *Aſh*.

The *Beach* Seed ripens the End of *September*, but it fills not well every Year, nor are we ſo very plentiful of old Trees as could be wiſhed; for that Cauſe we ſend abroad for Seed: Aſſoon as it comes to our Hand it may be ſown, or rather kept in a Couch of Sand, as the great *Maple*, till the *Spring*, for it comes up that Seaſon; affects a light Soil, no Clays.

The *Walnut* and *Cheſtnut*, albeit they be Fruit Trees, I plant them without the Orchard Walls; their Nuts ripens the Beginning of *October*: When they begin to fall, take them off, and rub off the outward Husk, but do not wet them, then order them as *Acorns*;

they come up the firſt Seaſon, and affects a light loamy Earth. I could wiſh for more *Horſe-cheſtnuts* their Seed from *Turky*.

The *Black Cherry* or *Green*, is a Tree that I love well in *Avenues* and *Thickets*; there is a Sort at *Niddry Caſtle* where I was born, ſeven Miles *Weſt* from *Edinburgh*, whoſe Fruit is preferable to any *Cherry*: I take it to be a Sort of *Heart*, but 'tis a great Bearer, (which Property the *Heart Cherry* wants) they are beſt Stocks for *Standard Cherries*: Learned *Evelyn* and Ingenious *Cook* takes Notice of this Tree.

Gather their Fruit when full ripe, the Beginning of *Auguſt*, eat off the fleſhly Part, *i. e.* the Fruit, and lay the Stones to dry a little, then lay them by *Stratums* with Earth, which prepares them, if ſow'd at *Spring*, to riſe that Seaſon, otherwiſe, they ly till the next: They affect a light ſharp Soil, and if you may, mix it with *Compoſt*, and then it ſhall be for *Cherries* of all Sorts.

The *wild Service*, commonly called *Rons-Tree*, their Fruit ripens in *September*, which you may eat or rub off by rolling in Sand; then prepare and ſow them as *Cherry*: They love a moiſt Ground or Shade not wet; if you will plant them in better Soil in *Avenues*, methinks they would be very pleaſant, when ſpread over with their umble faſhion'd, bright red Fruit.

The *Line* or *Lidne Tree*, commonly called *Lym*; the broad leafed, with odoriferous Flowers is beſt; the Seed ripens the Beginning of *October*, but fills not well every Year with us, and indeed we have few come to any conſiderable Perfection; yet I have ſeen them bear Seed at *Hamiltoun:* It ſhould be a little dried in an open Room, and couched in moiſt Sand till *Winter* paſs, and then ſow'd in a little Shade, for they muſt not be too much expoſed to the ſcorching Sun; they come up the ſame Seaſon; but if not prepared through *Winter*, they ly till the next: They love a freſh loamy Earth, and in planting them, I adviſe you to cover the Surface of the Earth about them with *Leitter*, topt with Earth the firſt Year at leaſt.

The *Horn-Beam* may be ordered as ſmall *Maple:* They like a dry ſtiff Ground, they are *Copſis*.

The *Hazel* and *Filberds* Seed or Nuts, is uſed as *Wallnuts:* They delight in dry Banks, nor are they ſtately *Forreſt Trees.*

The *Birch* is a proper Tree for much of our poor, dry and barren Grounds: I never raiſed any of them by Seed; in the Wood they are ſo plenty by *Suckers*, &c. Many of which handſome Trees I have planted ſucceſsfully.

The *Bean Tree* Soil, vulgarly called *Peaſecod Tree*, its Seed ripens in *October*, and being kept dry all *Winter*, ſown at *Spring*, comes up that Seaſon, and affects a moiſt Ground, but ſweet.

The *White Poplar*, vulgarly called *Abele*, 'tis a quick grower and pleaſant Tree, ſo is *Aſpen*; they are eaſily propagated by Cuttings, ſo the laſt by *Suckers*: See *Chap.* I. *Sect.* 5. They love a good Soil, ſomething moiſt.

The *Alder* is ſo propagable, and loves the Marſhes; and ſo is

The *Willows*, *Sallows* and *Oziers*, they all affecting a moiſt Ground, and muſt be ſo kept till rooted.

But I come to *Greens*; as

The *Pine Tree* and *Pinaſters*, whoſe Husks you may expoſe to the Sun till they open, and Seeds fall out, to be ſown in *March*; but if late ere they come home (they requiring the *Summer* Sun to open them) if you then ſow, they cannot get Strength ſufficient to withſtand the enſuing *Winter*; therefore keep them in dry Sand all *Winter*, and ſow them in the *Spring*, for they riſe that Seaſon wherein they are ſowed: They love a good and tender Soil, they are ſomething tender while young (as all *Greens* are) the great *Pine* is tenderer than *Pinaſters*, and nice in tranſplanting; therefore obſerve the Rule in *Chap.* VII. *Sect.* 2. ſhade and ſhelter in both Extremities of Heat and Cold while young: But none ſo proper for us as

The *Scots Fir*, many one of their Husk have I gathered any Time between *Januar* and the latter End of *March*, lay them on Cloth to the Sun which opens them, to b ſown latter End of *April*; they come u that Seaſon, and loves a Soil with *Pinus* See how to order in Nurſery: For they mu be dibbled in again the firſt Year, as ſpued u by Froſts: They or any Tree will grow o moſt Sorts of Ground, if well ordered and prepared, and ſecured from Drought the firſ Year. And therefore help the Ground wher it is not to Purpoſe (they will pay you o yours for your Pains) as if you plant in gravelly or dry ſandy Ground, mix it with Clay and Turf a large Diſtance round about th Roots; or if in ſtiff and moiſt Clays, trench 8 or 9 Foot on each Side round the Compaſs o the Roots, adding ſmall Gravel, fat Sand, &c and plant ebb. But enough of this in the laſt *Chapter*.

The *Silver Fir* is ſo ordered, only its tender while young, and ſubject to blaſting.

The *Pitch Tree*, as common *Fir*, 'tis hardy Tree, and no Wonder; ſeeing, as I am informed, it grows by Nature plentifully i *Norway*.

The *Yew* is alſo a hardy Tree, only require ſome Defence while young, their Berries ripens in *November*: Rub off the Fleſh o clammy Subſtance, and lay them to dry a littl (but not at the Fire) then box them *ſtratum* *ſuperſtratum*

uperſtratum of Earth and Seed, placing them n the Shade till the *Spring* come twelve Ionths; at which Time ſow them, and hen they ſpring: Affects a good Soil, not iff.

The *Holly* is to be uſed as *Yew*, for they ly s long; 'tis the moſt proper for Hedges of all he *Plants* in the World: Next thereunto is he *Hawthorn* (tho' not a *Green*) whoſe Seed ipens in *October*, and to be uſed as *Holly*, or it riſeth not till the *Spring* come twelve Ionths: And the better you prepare and mix he Ground with rotted Dung, the larger will hey ſhoot. Nor let any imagine, that *Holly* lſo loves not dunged Ground; nay (ſay they) oor and gravelly Soil: But I know the contrary by Experience.

I ſhall ſpeak of ſome *Shrubs* in *Chap.* VII. or I muſt leave them here, and come ſhew ou how to tranſplant and prune the ſtately *orreſt Trees.*

Thirdly, In Tranſplanting, remove with arth about their Roots (if you can) eſpecilly *Greens*, at leaſt take all the Roots up a ood Diſtance from the Stem, by making a rench round, and be not haſty: Then top ll their Roots with a ſharp Knife (ſlop tending down as a Horſe Foot) cut off all the ruiſed and broken Parts till you come at firm Wood, top the ſmall Roots like Hair to make hem ſtiff, ſo as they fold not when the Earth s put in, and rot thereby: Proportion the

Head alſo to the Root by thinning it, prune Side Boughs (reſerving always ſome for tapering the Tree) theſe you cut, do it cloſe and ſmooth by the Body, ſlanting upwards, and they will ſoon overgrow the Wounds, if the Branch cut off be not great. Cut not the Tops of *Oaks*, *Beaches*, they cannot endure it, neither any Tree that you ordain for Timber: Albeit I have been neceſſitate to lop great old Trees, whoſe Heads could not otherwiſe be conform'd to their Roots, which neceſſarly are diminiſhed upon Removal. But this is not the Caſe of well trained Trees in a Nurſery.

The Rule for removing old large Trees out of Woods or other Places, who were never before tranſplanted, is to make a Trench at two Sides of the Tree, Diſtance conſiderable, till you can inforce the Tree upon one Side; then cut the Top Root through, ſaving as many collateral Roots as you can; leſſen its Head, or lop it if it can ſuffer, and ſo ſet up the Tree again, and tread in the Earth about it, as it was; let it ſtand two Years to emit fibrous or feeding Roots to nurſe it when planted out.

But to my nurſed Trees again. When you remove, as is directed, carry them as quickly to their new Quarters as you can: Let the Soil where you ſet them be as connatural to the Nurſery as poſſible; ſee the laſt *Chap.* for preparing Grounds; and ſee *Part* I. *Chap.*

III. and IV. for the orderly Ways of Planting.

The beſt Way is to make the Holes a Year before you plant, and in *Summer* ſtir and turn their Earth, that no Weeds grow thereon: Make them betwixt 12 and 18 Inches deep, and betwixt 4 and 8 Foot *Diameter*, if ordinary Trees: But if the Ground be bad, and not proper for the Trees, then trench, mix and apply, till ſuch become more agreeable.

When you plant, lay the Surface in the Bottom, and fill up the Hole with fine Earth, till it can only admit the upper Part of the Root to ſtand level with the Surface (this is not to plant deep, for they that do but cheat themſelves) then ſet on the Root of the Tree in the Middle of the Hole, and if no Earth adhere to the ſame, make a little Hut in the Middle of ſmall Earth, and lay the Roots right ſpread round about with your Hands, that none ly folded or diſorderly, then put in fine ſmall Earth amongſt the Roots, and ſhake and move the Tree, ſo that the Earth may go in amongſt them till no Cavity or Void be left to let in the Air; ſuch Roots as folds, raiſe up and level in their wonted Poſture with your Hands, ſhovelling on more Earth, and tread gently, then fill one more, and tread well with your Heels, till it be as far filled up about as it ſtood in the Earth before, make the Bulk about level on the Top, and juſt the Breadth of the Hole, and it will be about Half a Foot above the Surface, if ordinary nurſed Trees and good Ground, you may put on the Rounding-ſtring to make its Edges circular and handſome, or if you will to make it like a *Geometrical Square*, then ſtraight Lines from Side to Side of a *Thicket*, will make up the Bulks, that the whole will appear as Walks and Borders two Ways: Lay new Horſe Dung, and *Leitter* or *Ferns* above the Bulk (ſo as it touch not the Stem) covered with a little Earth to keep it from drying, the Rains will waſh in its Subſtance, and refreſh the Roots, beſides it keeps out *Summer* Drought and *Winter* Froſts.

The firſt Year at leaſt go through, now and then, and tread them right after Winds. I am not for ſtaking Trees (but for training them ſo as they may not need it, except you drive three Stakes about each Tree at the out Side of the Bulk, then the double Straw Ropes tyed from its Body to all the three Stakes will ſecure; and if you faſten croſs Sticks, *Briers* and *Thorns*, here ſhall be a Fence about each Tree. Rub off Buds that offer to break forth near the Root, or any Place where you would not have them (but ſtill leave ſome here and there on the Side to ſtop the Sap from running too much in Head) keep them clean of *Suckers* and *Weeds* by Hawing in *Summer*, and delving and looſening the Mould about them in *Spring* and *Autumn*, *i. e.* at the two *Equinoxials*,

noxials, and tread faſt again, as fearing Drought and Winds.

Obſerving what is ſaid, you may expect monamental, clean and well thriving Trees, if right prun'd and well incloſed.

The Time of Planting, ſee Seaſon for Off-ſets, *Chap.* I. *Sect* 4. Neglect not your Time of early Planting, that is, aſſoon as they leave overgrowing, and before the Froſts come on, and you ſhall ſee them far outſtrip theſe ſet in the *Spring*, though I have often planted in the *Spring* through Neceſſity; but then I was always ſomething more than ordinary careful to defend them from the enſuing Droughts, by covering their Bulks, and watering, *&c.* yet I prefer the *Spring* for *Fir*, and other ſuch *Greens*, which therefore unavoidably requires the ſame Care.

Fourthly, I ſhewed before how to prune in the Nurſery while young, now continue when planted out; whileſt they be ſmall, prune every Year, when a little older, once in two Years, then once in three or four, and never ſeldomer than in five or ſix.

And as you prune up the Body, till the deſired Height leave ſmall Branches here and there by the Way, that it may bring Greatneſs with its Height, and be by Conſequence the more able to ſtand; let never a Tree get a greater Head than its Root is ſufficiently able to nurſe and bear; neither be raſh in lopping them, except they be already Top heavy, which brings Crookedneſs; *if* ſo, cut at a crooked Place, ſlanting upwards, clean and ſmooth, and train up the ſtraighteſt Shoot again to be the Tree, or rather if you can ſave its Head by thinning and croping the Branches on that Side which leans, *i. e* the under Side, thus at *Midſummer*, and ſlit the Bark in the *Spring*, ſo may it grow ſtraight and taper: Purge ſtill the Head when needful, and prune Superfluities, cut off all that croſs, rubs, frets and galls one another. Permit not Trees to fork, train them with one ſtraight and taper Body, and a handſome round pyramidical Head. And when you prune, cut cloſs and ſmooth by the Body or Bough with the Knife, or Chizel and Maul, or if the Branch be great, cut with a Saw (nicking it underneath firſt) and ſmooth it with the Chizel, ſo will it the better heal; but if the Tree be very old, and the Branches great, ſuch will never be able to overgrow the Wound, therefore if you muſt cut ſuch, do at a little Diſtance from the Body, the Wound declining the *Horizon*. Thus train *Pines*, *Firs*, *Pitch*, and theſe of the *Conical Tribe* in Stories only (which Method they naturally follow) you may cut out ſome of the greateſt Branches of the under Story, but ſo as you leave them regular or equally furniſhed round; ſo may you leave one Story, cut out the Second, leave the Third, &c. cut not their Tops, yet you may crop ſome of their Side Boughs, if the Tree be Top heavy, and afterwards as the Tree gets Footing, cut theſe clean off.

There be two Seaſons for pruning ſuch as loſe the Leaf: The firſt for theſe of little Pith is *October* and *November*, or any Time in *Winter*; and for them of ſoft Wood and great Hearts, and for *Greens* let the Froſts be over, and before the Sap in them riſe, except *Firs* and other *Roſinious Trees* in *November*, becauſe if prun'd in *March* they bleed, and in *September* and *October* they have not given over growing.

The ſecond Time is *Midſummer*, which is ordinarly about the End of *June*; this is a ſafe Time to prune them of great Pith, and any that is unapt to bleed; but eſpecially for cutting of young Shoots of this Year: Extirpate all ſuch Buds and Shoots as you deſire not to grow, and hereby you may make clean bodied Trees, albeit never ſo apt to break out in *Sipe* Boughs, as ſome *Elms* are. For the Diſeaſes of all Trees with their Cures, ſee *Chap.* V. *Sect.* 8 and 9.

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CHAP. IV.

Of Hedges or Incloſures.

Firſt, AS there is no Country can have more Need of Planting than this, ſo none more needful of Incloſing; for we well know how vain it is to plant, unleſs we incloſe.

I ſpoke of Brick and Stone Walls in *Part Firſt*, *Chap.* V. *Sect.* 5. Now for Hedges, I prefer the *Holly* and *Hawthorn*, raiſed from Seed, albeit there be ſeveral others: Mix not Hedges, becauſe ſtrong Growers overgrows the Weak, neither ſuffer *Briers*, *Brambles*, *Docks* or *Thiſtles* therein.

Secondly, Your *Hollies* having ſtood two Years in the *Seminary*, and two in the *Nurſery*, remove them by a Trowel, or a Spade with a Clod of Earth at their Roots, croping ſuch Roots as appears without the Clod with a ſharp Knife, and leſſen its Head by croping the Side Boughs (cut not its Top) plant in made up Borders, or at the Back of Ditches, at a Foot Diſtance in good Earth. Let them ſtand two Years untouched, except weeded, then cut their Tops at a Bud to make them furniſh thick, and ply their Side Boughs to grow through other, like ſlicing or feathering, and next Year fall to work with the Sheers, cutting both Sides and Top as we uſe to do with *Box*, &c. never ſupporting or binding any Hedge, as is the Cuſtom of ſome, plant your *Hollies* in *April*, and when ready for Sheers, cut in *May* and *July* therewith, and ſo train them cloſs from the Bottom, but neither too broad nor too high.

Thirdly, The *Hawthorn* having ſtood two or three Years in the *Seminary*, pull them up, and cut the Ends of their Roots, and their Tops within four Inches of the Root, and plant them within the Fence or Back of the Ditches in the good Earth, delve them in Spading, by ſpading all alongſt two Rows, a Foot Diſtance, ſtanding in equilateral *Triangles*, ſtill thickning your Border by adding good Earth, *&c.* Let them ſtand three Years untouched, except weeding and repairing where any is dead; then fell (*i. e.* to cut off a Tree) them within Half a Foot of the Ground, ſo will they ſhoot forth a *Thicket* of young Shoots, which next Year may be train'd with the Sheers, as before is inſtructed.

Fourthly, If you would plant your Hedge on the Face of a Ditch, as in wet and tough Grounds, then ſtretch a Line at both Sides of the intended Ditch, and rit with the Spade alongſt by the ſame, ſlanting inward; for if the Ditch be ſeven Quarters wide, it muſt be five deep (ſloping to a Foot in Breadth at the Bottom) then cut the Turf or Surface of your Ditch, and lay a Gang or Row of the firſt Spading alongſt by the Brink of the Ditch (ſloping at the Face according to the Slop determined, with Half a Foot of Table intercepting, becauſe ſo much will crumble down by the Froſts, *&c.*) On the Top of that lay one Row of *Quicks*, their Tops ſtanding up a little towards the Ditch, cover their Roots with fine ſmall Earth, and lay another Spading above them, and if you will lay another Row of *Quicks* above that, every one here oppoſing the mid Interval of the other, and ſo cover on the reſt of the Mould till the Ditch be finiſhed; being always ſure to put good Earth next the *Quicks*, tho' you ſhould bring it from ſome High-Way or Ridge of Land next thereunto, and every Year ſcour the Ditches, clapping it up about the *Quicks*; or a far better Way is,

To caſt Half of the Earth that comes out of the Ditches to each Hand, and *Quicks* in both Sides; accordingly this will make an invincible Fence; for then the Hedge grows up on both Sides of the Ditch, the Gutter betwixt makes it terrible: But that I am againſt the common Double (which is two Ditches near other, and the Earth that comes out of both laid betwixt them, with a Row of *Quicks* in the Face of each Ditch) is becauſe here the *Quicks* are obnoxious to the croping of Cattle; (beſides they take much Ground, and the *Quicks* are too much burdened with Earth) rather if you be for ſuch, make a little Space betwixt of plain Ground where you may plant the Hedge.

Fifthly, But if you would have a Row of Trees round by your Ditches, then make theſe two Ditches the Breadth of a Walk ſundry, but parallel, and in that mid Interval plant one ſingle Row of Trees, and the two Hedges at the Back of the Ditches: Here you have two excellent Walks of Shade, nor is the Ground loſt between thir Hedges; you may have good Hay, and in large Quantity. And in Effect, this is the beſt Way that ever I thought upon for incloſing and ſheltering our Grounds and Plantations; and you may make the Interval betwixt theſe Hedges wider, ſo as you may have two Rows of Trees.

Sixthly, Now for fencing the *Quicks*, in all the ſeveral Sorts from the Croping of Beaſts, as indiſpenſibly neceſſary while young.

If the Hedge be planted alongſt by the Bank or Inſide of the Ditch, then the ſtrong Ditch, with its Earth caſten to both Sides will fence it; and if you think that not ſufficient, ſet, ſtake and raiſe a Hedge on the Top of the Bank, or rather (which is indeed much better) Cuttings of *Thorns* ſet there in a Spade-bit Trench, well backed; or for Want of theſe, back up the Ditch with Turf, which is like Half-ditching. But all this Time there is but one Side of them fenced, and that next the Paſture; therefore no Beaſts can come on the other Side to eat the Fogage, except tethered Horſes: But if you make the Hedge or Hedges and Trees betwixt the two Ditches (you may caſt Half of their Earth to each Hand, and back them as is ſaid, which fences from all Hands moſt elegantly.) And if you plant your Hedges in the Face of the Ditches, the ſame backing on each Hand, will alſo fence them.

But where you plant Trees at a great Diſtance through your Fields or Parks, you may fence every particular Tree by cutting a little Trench round 4 Foot off the Tree, and about 2 Foot wide, facing it handſomely up like a Ditch, laying one Row of Turfs or Spadings above other, till it be 3 Foot high from the Surface, backing them with the ſmall Earth or Shovellings, battering inward to the Tree; here the Tree muſt be high planted; tho' more the Soil incline to wet, or the ſowrer that be, plant ſo much the higher above the Surface; you may ſtick ſome *Briers* or *Thorns* on the Top of this Stump.

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CHAP.

CHAP. V.

How to propagate and order Fruit-Trees.

Firſt, THE only Fruits for this Country are *Apples, Pears, Cherries, Plums,* (and *Apricocks,* and *Peaches* at *South* Side of *Walls, Currants, Gooſberries, Rasber*ies, &c.

Before I begin, I ſhall premiſe ſome Obſervations on Graffing, *&c.* a ſure Means to obtain Fruits of the deſired Species, and that n ſhort Time; for by taking the Twig or Bud of ſuch a Sort as is a good Fruit, and bears well, and graff or innoculate into a proper Stock; you are ſure to have the ſame Fruit; becauſe the Graff domineres, albeit it may have a little Smack of its Stock whereon ow graffed: And you may expect Fruit, becauſe it may actually have the Fruit Buds, as being taken from a bearing Tree. But if you ow the Seed, they will be long ere they come o bear, and at Length perhaps bring no fine Fruit; and for the Seed of graffed Trees, they will not bring the ſame Fruit: *Pears* and *Apples* will rather bring a Fruit of the Nature of the Stock whereupon they have been graffed; and although you ſhould take a *Cyon* of the ſame, and graff in its ſelf, that will not alter the Fruit, nor better the Tree, except a little check its aſpiring, which may as well be effected by pruning.

We can alſo be ſure of the deſired Fruit, by Cuttings, Layings and Circumpoſition; but ſuch are always dwarfiſh and ſhort leafed Trees, as wanting a main Root, which all Seedlings have: Hence ariſeth one Reaſon, why Stocks ſhould be raiſed from the Seed; *Suckers* are not ſo clean and luſty, therefore not ſo able to nurſe the Graffs, and they are apt to ſend *Suckers* again: Only I look upon *Plum-Suckers* as very good, becauſe when they ſpring off a Root at a Diſtance from the Stem, they ſtrike good Root of themſelves, very much reſembling *Seedlings*: Moreover you may graff on a Root, or a Stock ſprung off that Root, as in *Chap.* I. *Sect.* 4 and 8. which is near equal to a *Seedling*.

The Seeds of *Crabs*, or wild *Apples* and *Pears*, may be fit to make Stocks of ſuch Trees deſigned for the Fields, or more rugged Grounds; but for a cultivated Soil I would chooſe the Seeds of finer Fruits: And ſo the great *white Plum* is the beſt Stocks for *Apricocks*; or for want thereof, any other *white Plum* with great Shoots, albeit it doth on any *Plum*;

Plum; but we reject its ſelf for a Stock, as being too ſpungy, and not ſo durable: But *Peaches* and *Nectarins*, take only beſt upon *Peach* Stocks; ſo *Cherries* on *Geens*, and *Plums* upon *Plums*.

Goosberries and *Currants* needs not graffing, they do well by *Suckers*, *Layers* and *Cuttings*.

To make *Dwarf-Apples*, graff or bud on the Paradiſe, or any that hath *Burry-Knots*, *Codlings*, *Redſtreaks*, &c. *Dwarf-Pears* on the *Quince*; but no *Pear* holds well on it (that I have tried) ſave *Red Pear*, *Achans* and *Longavil*; but you may re-graff for Varieties: And if you be very curious for theſe Stocks (which I am not) you may cut them at the *Spring*, when ready for graffing, within two Inches of the Ground; and at *Auguſt* come twelve Months, innoculate in that young Shoot, and perhaps they will proſper the better. But I think graffing in the Roots of *Pears* will produce *Dwarfs*.

Dwarf-Cherries on the *Morella*, or on the common *Red Cherry*; or on that *Red Geen* ſpoken of in *Chap.* III. *Sect.* 2. which is more dwarfiſh than the *Black*.

Secondly, The mellow, warm and light Ground is for Fruits; and although the beſt, warmeſt and lighteſt Land yields moſt excellent Corn, yet the ſtrong, ſtiff, cold, moiſt, yields not ſo good Fruits, Plants, Graſs, Hay, *&c.* *Apples* affect a pretty rich loamy

Soil, tho' they will bear in Clay mixt with Lime, Dung and Turf.

Pears will proſper well enough, where the Soil is mixt with Gravel: But both *Apples* and *Pears* are better reliſhed in warm Grounds that are not over moiſt, than in cold and wet; yet there be ſome Grounds hath ſweet moiſture, others ſowre; which laſt is very bad, and therefore muſt be helped by Draining, and Application of proper Medicines; ſee *Chap.* II.

Cherries, *Plums*, *Apricocks*, *Peaches*, affect a light ſharp Soil, throughly prepared and mixed with rotted Manures. As to their Propagation,

By Graffing, are *Apples*, *Pears*, *Cherries*, *Plums*, *Quince*, *Medlar*, *Wallnut*, *Cheſnut*, *Filberd*, *Service*, &c.

By Innoculation or Budding, are *Apricocks*, *Peaches*, *Nectarines*, *Almond*, *Goosberries*, *Currants*, *Apples*, *Pears*, *Plums*, *Wallnuts*, &c.

By *Suckers*, are *Currants*, *Goosberries*, *Barberries*, *Rasberries*, *Quince*, *Vine*, *Fig*, *Mulberry*; 'tis the *White* that feeds the Silk Worm; but that's to little Purpoſe here.

By *Layers* and Circumpoſition are all Sorts.

By *Cuttings*, are *Currants*, *Goosberries*, *Vine*, *Quince*, *Apples*, eſpecially theſe with *Burry-Knots*.

By *Nuts* and *Stones*, are *Wallnuts*, *Cheſnuts*, *Filberds*, *Almond*, *Peach*, *Plum*, *Cherry*.

By *Kernels* or *Seeds*, are *Apples*, *Pears*, *Quince*, *Goosberries*, *Currants*, *Barberries*, *Vine*, *Mulberry*, &c.

I have told whereupon to graff *Apples*, *Pears*, *Cherries*, *Plums*, *Apricocks*, *Peaches*; and as for the *Quince*, you may graff it on it ſelf, or on the *Hawthorn*; *Almonds* on it ſelf; *Medlars* on *Pears*, or on the *Service*; *Filberds* on the *Hazel*; *Service*, *Wallnut*, *Cheſnut*, *Goosberry*, *Currant*, all on their own Kind.

Thirdly, In raiſing the Stocks, obſerve, That

Apple and *Pear* Seed muſt be ſeparate from the fleſhly Subſtance, and ſpread to dry a little, eſpecially the *Cyder-Marce*, leſt it heat; you may roll it in Sand to help the Separation; keep it in a Couch of dry Sand till *Winter* paſs, then ſow them aſſoon as the Froſts are over; they come up that Seaſon.

For raiſing *Cherries* or *Geens*, ſee *Chap.* III. *Sect.* 2. *Peach*, *Plum* and *Almond* Stones, muſt be uſed in all Caſes as *Cherries*, only you may break the *Peach* Stones.

Uſe the *Quince* Seed as *Apples*. As for the reſt, I have ſhewed how they are encreaſed in the laſt *Section*, and how to perform the ſeveral Ways in *Chap.* I.

But you muſt prepare a *Seminary* and *Nurſery*, as before for Forreſt-Trees, [ſee *Chap.* III. *Sect.* 1.] ſow every Species by themſelves, keep them clean of Weeds, and the next, or ſecond Year after the Seeds riſe, if they ſhoot luſtily (draw out the biggeſt firſt) tranſplant them into the *Nurſery* in ſingle Rows, two Foot interval, and half a Foot in the Rows, for Conveniency in Hawing, Graffing, Pruning, *&c.* and obſerve to prune the Root and Side Branches in Planting, as I directed with Forreſt-Trees: Only when you have got them to a convenient Height for graffing, you may cut their Tops to make their Bodies ſwell the ſooner; albeit this be not permitted with Forreſt-Trees: However graff and innoculate, while the Stocks are young, ere they be an Inch Diameter, and they will ſooner heal the Wound: Let them have a Years Settlement in the *Nurſery* before you graff; but you may innoculate that ſame enſuing *Summer* after Planting, eſpecially if they be very free and luſty. Next Year after graffed, remove them to a wider Diſtance, *viz.* three Foot one Way, and a Foot the other; prune their Roots at every Removal, and enter a Pruning, that they may provide for a well ſhapen Head, cut them near now while young, if you would have all their Branches of an equal greatneſs, and of order proper, as anon I ſhall inform you.

In ſetting your Stocks in the *Nurſery*, I preſume you will ſet every Kind by themſelves, *i. e. Pears* with *Pears*, and *Apples* with *Apples*, &c. And when you graff or bud, write down in your *Nurſery-Book* their

Species as they ſtand, *viz.* Begin at the End of ſuch a *Nurſery*, and ſay, The firſt Row is graffed with ſuch a Sort, and ſo forth; and if you have more than one in a Row, then ſet in a Stake betwixt each Species, and ſo write thus, From ſuch an End of ſuch a Row, to the firſt Stake, is ſo many of ſuch a Sort or Species; thence to the ſecond Stake, ſo many of another, *&c.*

Fourthly, When you tranſplant Fruit Trees into Orchards, do as I directed with Forreſt Trees in Groves, plant not deep, neither trench too deep; but tempt the Roots by baiting the Surface with Dungs to make them run ebb within the Reach of the Sun and Showers: Therefore mix the Earth in the Holes (which ſhould be 6 or 8 Foot Diameter) with rotted Nolts Dung, and Earth well turned, ſweetned and prepared, as in *Chap.* II. cover, delve and haw their Bulks, as in *Chap.* III. *Sect.* 3. and for further improving and keeping your Fruit Trees in good Caſe, [ſee *Sect.* 6. of this *Chap.*] Prune their Roots at every Removal, as Forreſt Trees (Experience forbids me to make Exception of the *Peach*, or any other, as ſome doth) and proportion their Heads to their Roots by Pruning: But here note, that as Forreſt Trees are train'd up high Bodies and unlopt Heads, ſo Fruit Trees with low Bodies, their Heads lopt and Branches topt; therefore, eaſily proportion'd as aforeſaid.

Standards of 4 Years old, may be planted out of Nurſeries into Orchards, *Wall-Trees* of two Years old.

The Seaſon of the Year is aſſoon as they give over growing, (if the Leaves be not off, cut them, ſaving a little Tail of their Stalks) 'tis true you may plant any Time in *Winter*, Weather open, but rather let the Froſts be over, and the *Spring* approaching, if you have miſſed the Fore end of *Winter*, which is the better Seaſon.

For *Standards*, are *Apples*, *Pears*, *Cherries*, *Plums*, *Gooſberries*, *Currants*, *Barberries*, *Quince*, *Wallnut*, *Cheſnut*, *Filberds*, *Service*: But I think all theſe deſerves not a Place in the Orchard.

For Walls, are *Apricocks*, *Peaches*, *Nectarines*, *Almond*, *Vine*, *Fig*, *Currants*, *Apples*, *Pears*, *Cherries*, *Plums*, &c. But you need not take up much with *Almond*, *Vine*, *Fig*, nor *Nectarine*

On the *South* Side of the Wall, plant *Apricocks*, *Peaches*, *Nectarines*, *Vine*, &c. On the *Eaſt* and *Weſt* Sides *Cherries*, *Plums*, *Apples*, *Pears*, &c. On the *North* Side *Plums*, ſome *Pears*, as great *Bargamot*, ſome *Apples*, *Currants* eſpecially, and *Raſps*, &c.

When you elect them in the Nurſery, hang Sticks tied at them figured, and write the ſame Figure on the Paper at their Name, to diſtinguiſh their Species; and afterwards being planted, write them as they ſtand.

Fifthly, Begin betimes to prune your Fruit Trees, ſpare them not while young; reduce them into a good Shape and Order while ſuch, ſo will they not only ſoon overgrow the Wounds, their Branches being but ſmall, but alſo when they ſhould come to bear Fruit, ſhall not need to cut ſo much, only purge them of Superfluities; and this is the Way to make Trees fruitful as well as pleaſant.

Some Ignorants are againſt Pruning, ſuffering their Trees to run and ramble to ſuch a Head of Confuſion, as neither bears well nor fair; for the Root is not able to maintain ſuch, far leſs Fruit too, and therefore are their Fruit ſo ſmall and imperfect; in the mean Time the Tree ſpends its Strength, and ſo cannot live long, nor make good Service in their Time; yea ſometimes the Root is not ſo much as able to bear ſuch monſtrous Heads. I knew one windy Day proſtrate above Half a Score of ſuch in a little Orchard.

Others again that are for Pruning, uſually runs on the other Extream, by cutting too much, and untimely; and ſome ſparing what they ſhould cut, and cutting ſuch as they ought to ſpare: But the general Error even amongſt the Learned is, that they ſpare them when they ſhould prune, *viz.* the very firſt and ſecond Year in ſpecial, yea the firſt five or ſix Years, and then they fall a maſſacring; at which Time the Branches being grown, ſome of them greater than other, who now runs away with all the Nouriſhment from the ſmaller, in ſo much that no Man can reduce them to Order again, having thus neglected the Time: Albeit you ſhould endeavour it by cutting deep, or exterminating theſe great Branches, which I confeſs is the next Remead; but then as theſe Wounds brings Cankers, Hollowneſs, *&c.* ſo doth the Work retard their bearing Fruit. And indeed 'tis about the Time that Trees ordinarly begin to bear Fruit, that theſe unskilful Men begin to prune; and the more they are thus cut in the Head, the more they ſpring out to Wood, and the leſs Fruit they bear. But Experience has taught me to begin while young.

And when you do begin, conſider on the Height of the Body (for as high Trees are unprofitable, ſo too low Trees in Orchards are inconvenient) for *Apple* and *Pear Standards*, two or three Foot; *Plum* and *Cherry*, three or four Foot; *Dwarf* and *Wall-Trees*, Half a Foot; there cut the Top that runs ſtraight upwards, making it to ſpread out in Branches round, ſuffer no Branch to aſpire beyond other in Height, nor any to croſs, rub or gall one another; and whatever Branch or Twig you cut off, cut cloſs and clean by the Body or Branch (except in the Caſe of old Trees and great Branches, as I obſerved in pruning Forreſt Trees) and in toping of Branches, cut cloſs and ſmooth immediately above a Leaf-

Bud,

ud, ſlanting upwards; and when you prune, are the Fruit-Buds (the full ones are them) cept you ſee them too many; then purge by e Knife: Likewiſe, if afterwards you find ore Fruit knotted than the Tree can be able nurſe to Perfection, thin them in Time.

But your firſt Work is to proportion the ead to the Root by pruning, cut the Tops a convenient Height, that the Tree may row equally furniſhed round; for cutting, as diminiſheth, ſo it forms and ſhapes the ead, inſomuch as it furniſheth with new oung Shoots, that may be trained as you eaſe.

Standards ſhould have but four Arms break- g out for a Head, opening equally round, heſe divide into Branches, and again ſubdi- iding into Twigs. And that you may the etter underſtand what to cut, you may ſtand nder, go about, look up through the Tree, here you may eſpy Superfluities; keep them lear, void, open within like a Bell, and le- el on the Top, make ſome larger Opens to- ards the *South* for Sun-Beams Entrance; let o Branch grow croſs through the Heart, or Shoot ſpring up therein (minding always o prune ſuch as croſs, rubs and galls other, s above is noted) and any Branches, Shoots r Twigs, that grows not the Way you would ave them, cut them at the Place whence you hink they will ſend forth Shoots, which may ead the Way you deſire them; cut cloſs, ſmooth and ſlanting, at the Back of a Lea Bud tending that Way. By this I bring Tre to Order.

Wall-Trees eſpecially ſhould be cut nea while young, that they may ſend forth Thicket of ſmall Shoots, for furniſhing you Walls from the Bottom equally; and if yo continue to top them every Year at a convenient Height (perhaps about Half a Foot above the laſt) that will make them ſhoot a their Branches of an equal Uniformity o Greatneſs, Height and Thickneſs, ſo that n long, bare or naked Branch be ſeen there neither one or two great, and all the reſt ſtarved ſmall; the common Fault of our *Wal Trees*: And is occaſioned through neglecting t cut while young, even the firſt Year, as i ſaid above.

But albeit a Tree right begun, and ſo going on, yet one Years neglect, or wrong pruning may ſpoil it. For as I was once pruning *Wall-Trees*, an ingenious Perſon ſtanding by ſaid, I cut them too low; alledging thereby the Wall ſhould be long uncovered, deſiring me to cut them a little higher. I told him, tha was wrong; but for to ſatisfy him, I did cu two of them about 8 or 9 Inches higher tha I deſigned, or ſhould have done. The nex Year theſe two Trees left about a Foot naked round, and above the ſame crown'd like Neſts while the reſt was equally and orderly furniſhed; when he beheld this, his Mind wa hanged, and I obliged to cut exactly where ſhould have done the precedent Year, which as now a little below the Middle of the na-ed Place, and this did put them ſeveral Years ehind the reſt of bearing Fruit.

You may nail them at *Midſummer* that Year f Planting, and ſo continue to do at the eaſons hereafter deſcribed: Prepare double lancher-Nails, and Tags of Hats (which is etter than Leather) ſhape the Tags about alf Inch broad, and betwixt three, four and ve Inches long, making a Gaſh with the nife near the Ends by folding, to put through e Nail, then ſpread the Tree, laying, ply-g and nailing every individual Branch by ſelf, all at equal Diſtances from other, not oſs in one Place, and wide in another, and t none croſs other; the ſuperfluous, and eſe that will not ply eaſily, and the exube-nt or luſty, that robs the reſt, muſt be cut way.

Well plyed Trees will appear like a *Peacocks* rain ſpread, except theſe on a low Wall, hich you may cauſe lean all one Way, as alf of the other; drive the Nail but ha[illegible] ay in, and on the upper Side of the Branch, e it will lean and gall; at every Nailing ter the old Nails, and beware of pinching gs, &c.

The Time for pruning old planted and rdy Trees, is any Time betwixt the Leaf lling and the *Spring*; but let the Froſts be over before you prune the new planted, young and tender, and before the Sap riſe, otherwiſe the Froſts will penetrate the Wounds, and make a Sore: But if you muſt cut before the Froſts, becauſe their Heads may be obnoxious to the Winds (ſuch are ordinarly the new planted *Standards*) then you may cut a little, and at *Spring* cut off theſe Pieces left cleanly, as before is noted. Alſo let the Froſts be over, before you prune your *Wall-Trees*, and before they bud; only I uſe to let *Peaches* bud forth a little, ere I prune them, otherwiſe Pieces of their Branches ſometimes periſh after the Knife.

And beſides, that you muſt rub off all unneceſſary Buds, and pull up *Suckers* and *Weeds* from the Roots; you muſt alſo give all your Trees a *Midſummer* pruning (which is ordinarly the End of *June*, and Beginning of *July*) a good Time to cut any Shoots of this Year; any Shoots or Buds as tend, not only to the deforming your Trees, but robs them of that Sap, which may be otherwiſe ſpent in nurſing the Tree and its Fruits, (but the *Spring* is the Time of cropping or cutting their Tops, until the Wall be covered, then crop at both Seaſons) thin and purge gently, to let in the Sun, but not to ſcorch the Fruit: This is alſo the Time of furniſhing your Trees with Pedaſtools or Bearers: Therefore in Repruning, ſave as many of the likelieſt Shoots as are well placed, and cut them at the hird or fourth Bud from the Tree; but cut uite off the luſtieſt and greateſt of this Years (which Ignorants do ſpare) and nail up ſuch s are of filling up the Defects of the Wall.

You may go through them in *Harveſt*, and urge the Fruit of ſuperfluous Leaves, which inders the Sun; but do it ſo, as there may e Leaves ſufficient to ſcreen the Fruit, and ut quite off the luſty Shoots of this ſecond pring, that robs the Tree and Fruit.

As for *Goosberry* and *Currant Standards*, rain them to a Foot Stem, with a handſome ound, but thin Head: Theſe at Walls, Half a Foot Stem, with a well ſpread Head, ſupported with Rods laid croſs, faſtned with Nails and Tags. *Raſps* may be in ſhadowy Borders or Beds, a Foot Diſtance, kept clean f *Suckers*, *Weeds* and *dead Wood*.

But becauſe ſome Years, in ſome Places, e have ripe *Grapes*, eſpecially that we have nder the Name of *Frontinack*; therefore if ou think a Tree, or two of them worth our while, plant them at a *South* Wall, in a ure and fine Mould, not wet, ſowre and rowd, but a light ſweet Soil, mixt with ſome Cows Dung, rotted in Heaps with the Mould. Plant ebb, and trench not deep; prune them very Year, prune low in *February*, and at he true *Midſummer*. Cut off the luſty young Shoots and Tendrals with Sheers, betwixt he ſecond and third Joint above the Fruit; nd in *Auguſt* purge it of ſuperfluous Leaves, but reſerve ſo many as may ſcreen the Frui a little.

There be ſome Sorts of Fruit Trees, tha will blow and bear themſelves to Death, whe young or middle aged; for ſuch, cut mo of the blowing Buds, and thin the Head t make it ſhoot again.

I got ſome *Cherries*, and other Stone Frui from *Holland*, who took this Decay; wherefore in the *Spring*, I did cut off the blowing Buds and the Branches, near the Place where the Tree headed, reſerving only ſome Buds for receiving the Sap, (in Caſe they ſhould have put forth at the Middle of the Body, or a little above Ground) this made them ſhoot to Wood. Therefore I conclude, that by this, and delving about, you may help ill thriving Trees.

There be alſo ſome *Apples* and *Pears*, that will be full of falſe bearing Buds, that doth not blow; ſuch having got more Head than the Roots can well maintain, conſequently has not Strength ſufficient to ſpare Sap for Bloſſoms, far leſs for Fruit, which by pruning and thinning the Head, and by ſlitting the Bark of the Body in the *Spring*, may be made afterwards to bear well, when they have put forth new Shoots at the Head.

Some Trees there be that will not bear of themſelves till they be old; but if you cut off the Head of the Shoots, aſſoon as ever the *Spring* Shoot is over (which is at the true *Mid-*

mmer) and take out ſome great Boughs then.
f you mind your Time, and do it with Diſ-
retion, you may force that Tree to put forth
lowing Buds, and blow and bear the Year
llowing, as I ſhall inform you in next *Sect.*
ut,

Sixthly, One main Buſineſs is to incloſe your
lantations; avoid planting too deep, too dry,
o cold, too moiſt, and guard your Orchards
rom Winds, by planting two Rows of *For-*
ſt Trees, at leaſt round without the Wall,
e Breadth of a large Walk therefrom, with
hickets of the ſame on the *Weſt*, *North* and
aſt; but eſpecially on the *Weſt* (yet mind
egularity) alſo obſerve my Method of Plan-
ing and Pruning, and Ordering their Bulks
f 6 or 8 Foot Diameter; but when the Tree
rows old, and their feeding Roots far abroad,
ou cannot reach to feed them with Dungs in
his narrow Compaſs; therefore enlarge it, or
therwiſe confine them a little ſooner, and
inder their too far gauding, by digging a
Circle round the Tree perhaps 8 Foot Diame-
er, and cut all the Roots clean off there, that
ath run out, applying freſh and ſweet Mould,
o ſhall they emit fibrous or feeding Roots in
Thicket, which may be ſupplied with Re-
freſhments once in two or three Years, as
ſhall be required; and this cutting the Roots,
will cauſe Trees that are apt to ſpend more in
Wood than Fruit, alter therefrom, (add this
o the latter End of the laſt *Section)* and the

Ends of the Roots cut off, and their But-ends raiſed up a little, will ſerve as Stocks to graff upon.

When you would enrich your worn out Plantations, if the Ground be poor and dry, add well rotten Dung prepared and mixt with Soil; the Water that ſoaks from a Dung-hill is excellent, for it will follow the Roots, and enrich the Trees. If the Ground be cold and moiſt, add *Pigeons* Dung, or Aſhes and Soot; which is alſo excellent, if it be leopared with unskilful Dunging, or by noiſome *Weeds* that grows about ſuch Roots (where the Owner is a Sluggard) and hatches or neſts *Moles*, *Mice*, *Toads*, &c.

If you obſerve the Premiſes, you may prevent their Diſeaſes, ſuch as ill thriving, &c. but if you have, or do neglect, and the Diſeaſes be come, as if Cankers or Galls be entred, cut them clean out, covering the Wound with a Plaiſter of Cows Dung and Clay compound; if the Bark be pilled by *Hares*, *Conies* or *Mice*, apply a Plaiſter of the ſame, (but better prevent the laſt three, by ſwaddling the Trees with Straw or Hay Ropes, unlooſed in *Summer*, and renewed every *Winter*, if your Fence cannot guard them.) Ill taken off Branches, broken or rotten Branches, muſt be cut off clean and ſmooth. If any Trees be Bark-bound, (which is the Miſery of many, and eſpecially *Forreſt Trees)* ſlit them in the *Spring* through the Bark on both Sides, with ſharp Knife, from the Head to the Root, and elve about them, otherwiſe raiſe and plant bber, if too deep; which is the common Cauſe of this Diſeaſe, together with bad Inloſure.

If *Jaundiſe*, cut off the diſeaſed Wood; if *oſs*, ſcrape or ſinge it off; but 'tis vain to ttempt the Cure, until you firſt remove the Cauſe; which you will find to proceed from ome Malignity at the Roots, whether the Diſeaſe be *Bark-binding*, *Cankers*, &c.

And this moſt commonly by ill planting nd not incloſing) as among Clay, Water, mpenetrable Gravel, *&c.* Water muſt be rain'd, 'tis an intollerable Evil: Cold Clays, iff and hard Soil muſt be trenched and mixd with Dungs and Soils, often ſtirred and falwed, as above is directed. And if you ould have Trees to proſper, obſerve their ature, and wherein they moſt delight; and apply and help them accordingly.

Ninthly, And for deſtroying of *Vermine*, ere is Traps for *Moles* of ſeveral Forms, ſides you may watch and delve them up ith the Spade. And for *Mice*, the Traps om *Holland*, or for Want thereof, Pots ſunk the Earth (where they haunt) till their outh be level with the Surface, half full of ater, covered with a little Chaff, wherein ey drown themſelves; and ſo doth *Toads*, *ſps*, &c. caſt away the Earth where the *nts* lodge, ſupplying its Place with ſtiff

Clay:

Clay: Place Cow-Hooves for the *Woodlice* an *Erwigs* to lodge in all Night, and ſo ſcal them early in the Morning. Pour ſcaldin Water in the Neſts of *Waſps*, and hang Gla ſes of *Ail* mingled with *Honey*, where yo would not have them frequent.

Daſh Water on the Trees for *Caterpiller* by the Stroups we get from *Holland*. Gathe *Snails* and *Worms*, ſhoot *Crows*, *Pyes*, *Jaye* and ſpread Nets before your *Wall-Fruit* fo their Preſervation.

See the *Appendix* how to gather and preſerve Fruit, and how to make *Cyder*, &c.

* * *

CHAP. VI.

Of Fruits, Herbs and Roots for the Kitchen

Firſt, ALL the Fruits where of I ſpake in the la *Chapter*, are for th *Kitchen* or *Table*, bu they grow on *Tree* or *Shrubs*; yet ther is ſome falls in here the tendereſt whereof are,

Melons, and are not worth the while, fo you muſt raiſe them on the early Hot-Be

(th

(the making whereof is in *Chap*. II. *Sect*. 7.)
vhich (when fit for Seed) prick four or five
n together, at three Inches Diſtance through
he Bed, ſetting Drinking-Glaſſes on them at
irſt, and cover on the Matts over the whole
arefully, to preſerve from Snow, Rains
nd Winds, taking off the Matts in temperate
Days, but keep on the Glaſſes, except in a
varm Space, that you acquaint them a little
vith the Air, by raiſing the Edge of the
Glaſſes with a little Straw on the lown Side,
loſing it at Night again: When they ſtand
n Need, water with Water made warm by
anding a Day or two in the Sun, impregnate
vith *Pigeons* Dung, but let it be freſh and
lean, conveying it to the Roots, not touch-
ng their Leaves with it: If they be ſowen on
he laſt deſcribed Hot-Bed, *viz.* in Caſes, ſow
t a wider Diſtance, and you need not tranſ-
lant, but renew the Heat when needful, and
s they grow larger, cover with the Bell-
laſſes, giving them Air by hoiſing the Glaſ-
s, till they can endure the Sun without
hem, but ſtill cover all cloſe at Night again:
Vhen they have put out Runners four or five
nches long, cut off one or two Joints at the
nd, and when they have gathered more
trength, cut off all but the prime Shoots:
nd when the Fruit knots, nip off that Run-
er above the Fruit, between the ſecond and
hird Joint, cutting ſtill off the new ones that
pring, but do not expoſe the Fruit to the

Sun: Lay Tile under the Fruit, wipe the Dew off the Glaſſes and Plants every Morning, bu keep the Glaſſes on the Fruit, and water non now.

Cucumbers may be ordered that ſame ver Way, and ſo may *Pompions*, but they ar not ſo tender: I have raiſed them withou Glaſſes.

Strawberries are a very fine and delicat Fruit, and are eaſily increaſed, but beſt b the ſmall Plants at the Strings, when take Root at the Joints; plant them at any, o both *Springs*, but I find moſt of fibrous roo-ted Plants, apt to be ſpued out of Ground b *Winter*, if not rooted ſufficiently before Dung, delve, mix and prepare a light an warm Soil, prune their Root and Top, an plant in ſtraight Lines, 5 Rows in the Bed and ſuffer them never to over-run, but kee each Stock by themſelves, ſtill taking off a their Strings (except at ſometime you permi a few for Increaſe) weed and haw amon them; and in *September* cut them withi two Inches of the Ground, and lay Cow Dung over the Bed (reſerving their Tops free covered with a Strinkling of Sand, this wi much improve them. ſo as they will not nee renewing for ſix or ſeven Years.

Artichocks is a fine and laſting Fruit, an is increaſed by Off-ſets chiefly planted in th *Spring*, a fat and well cultured Soil, light an warm, enriched with Sheeps Dung, plant i

ſtraigh

ſtraight Lines, about three Foot Diſtance having prun'd their Roots, and cut their Tops within Half a Foot; water (if needful) with qualified Water, and ſtill cut away their under and hanging Leaves, and haw the Weeds as they begin to peep; when their Fruit is ſpent, cut them within Half a Foot of the Ground, and delve and cover the Plot over with Dung and Leitter, keeping their Tops free: And in *April* delve down the ſame, and extirpate them of *Suckers*, ſliping them off carefully, leaving two or three at moſt to each Stock for bearing, and they will flouriſh near 9 or 10 Years.

Great *Beans* muſt be planted early in the *Spring*, aſſoon as the great Froſts are over, in deep rich Ground, two Foot Interval, and Half a Foot in their Rows; theſe for Seed, when full ripe, cut and bind in little Sheaves, and lay on Trees to dry.

Kidneys in *April*, a light and warm Soil, ſupport them with Sticks.

Peaſe that you would have early, ſow in the full Moon of *November*, if a warm Place; but do not truſt too much unto them: Sow in *February*, and hence Monthly till *June*, that you may have them till the Froſts ſurprize; in an open, light, warm, dry Soil; and it they ly on the bare Ground, they will ſooner ripe by Reflection: But if you would have them fruitful, ſet Sticks amongſt them while young, for their Tendrals to climb on; and keep them always clean of Weeds: When ripe, you may eaſily win ſome for Seed, and ſow not every Year on the ſame Plot; to change the Ground improves them. I prefer the ſetting them by Lines, five Rows in the Bed, [as *Part Firſt*, *Chap.* V. *Sect.* 2.] make the Holes nimbly by the Lines, with a Dibble 1½ Inch deep, and two Inches Diſtance; another, or the ſame Hand, fallowing, and put one in each Hole; then give the Bed a ſmooth with the Rake Head, which fills the Holes, and covers the *Peaſe*: One Pound makes more Service thus, than three otherwiſe; 'tis ſooner performed, and they ſpring orderly.

Secondly, Of *Sallads* and *Pot Herbs*, the choiceſt *Sallad* is *Aſparagus*: Sow its Seed in *March*, good Ground, and that Time twelve Months tranſplant into an exceeding rich and well mixed Ground of rotted Dung and light Earth. You may ſtretch Lines alongſt and croſs the Beds, and mark with the Edge of the Rule; then gather little Huts of Earth at the Croſſings, whereon you muſt ſpread the Roots of your *Aſparagus*, two or three on a Hut, but do not top their Roots, (you may perceive their Points are like the Runners of *Liquoriſh*) then cover the Sets with rotted Dung and Earth two Inches over, which has been lying a Year in Compoſe: They cannot abide wet Grounds, and Weeds will quite deſtroy them; at the Approach of *Winter* cut their Stalks, and cover their Beds

with

vith Leitter and Dung from the Stables: The *Vinter* Rains will waſh in its Subſtance to heir Roots: At *Spring* ere they peep, remove , and looſen the Earth amongſt them with Fork, and cover them near half Inch with he Mould raked and evened, but do not tread n them. Follow this Direction yearly, and n four or five Years it will be excellent for utting, cut the biggeſt and tendereſt, and a ittle within the Ground, but hurt not them eady to peep. The Seed is ripe when red.

You may have early *Aſparagus*, if you plant ome ſtrong Roots on your early Hot-Bed; vhich about a Month hence will ſpring, and hen dy.

Purſlain may be ſown on the early hot Bed, it cannot endure deep interring; ſow n a fine Mould like Duſt, and only clap it little with the Shovel: Hence on the cold Bed, but fat and fine Soil through the *Summer* n Drills, for Convenience of Weeding and Cutting; and if you pleaſe tranſplant it when wo Inches long, reſerve the early ſown for eed, till their Pods grow blackiſh, then pull nd hang to dry, and rub out.

As *Purſlain*, ſo *Lettice* by Seeds only, at he ſame Seaſons, (but the *Winter* with *Corn Sallad* in *Auguſt*) they love a fat Soil ſome-hing moiſt, that for *Winter* more dry. Suf-er theſe for Seed to run up, and only cleanſe off under and withered Leaves. 'Tis ripe vhen it begins to fly with the Wind, pull it, and lay on a Cloth to perfect, and rub out i a dry Day.

Sow *Creſſes* at the ſame Times. An plant

Tarragon by Off-ſets in the *Spring*.

The ſmall *Chervil* by Seed, as *Creſſes*. A alſo

Burnet, but it continues many Years, ſti yielding Seed.

Sampier grows at the Sea-ſide in *Gallowa* not ſo well in our Gardens.

Succory and *Endive* by Seeds and Off-ſe at both *Springs*; they continue many Years.

Sorrel by Off-ſets (ſome by Seed alſo) i the Beginning of *April*, a good fat Soil, little Shade, ſix or ſeven Rows in the Be weeded all *Summer*, and cut near the Grou in *September*. In two or three Years repla into another Place, for they ſoon impair t Ground of that Part appropriate for them.

Spinage by Seed only in *February* and *Mar* but that ſown Beginning of *Auguſt* is mo profitable; cut it the Beginning of *October*, a it will ſpring afreſh: And be ready for Spring ſtoves, then reſerve ſome uncut for Seed; proſpers well in a very fat Earth, not t dry.

And ſo doth *Beets*, who are alſo prop gate the ſame Way, only them ſown at *Spri* are moſt ſerviceable.

Sow *Beet-Card* in the fatteſt, and wh ſomething ſtrong you may tranſplant: Th

Se

ed the next, not that Year wherein you ſow
em.

Order *Burrage* as *Spinage*, it is alſo annual:
Bugloſs, but it continues many Years.

Marygold may be ordered as *Burrage*, and
hite *Arage* as *Spinage*.

Parſly by Seeds in *February* and *March*, they
ing forth their Seeds next Year, whereby
ey muſt be yearly renewed.

Sellery in a light fat Soil, eight Rows in the
ed, as *Parſly*, it continues long, yearly yield-
g Seed after the firſt; and ſo doth *Smal-*
dge and *Alexander*: They may be blanched
Succory and *Endive*, *viz.* *Sellery* ſown at
pring, tranſplant at *Midſummer* in a very fat
d fine Earth, half Foot deep Furrows, three
oot between the Rows, and but three Inches
the Rows, and as it grows up, gather the
arth at its Sides from the Intervals, leaving
e Top free, and ſtill as it grows, Earth it
p; ſo ſhall it be blanched ſor a *Winter Sal-*
d.

Garlicks and *Shallot* by Off ſets in *March*,
light and fat Soil, eight Rows in the Bed:
uſe neither cutting nor twiſting their Stakes,
ut when their fibres begin to rot latter End
f *Auguſt*, take them up, and ſpread to dry a
ttle, and houſe them in a dry Room with
oard Floor for Uſe.

Leeks by Seed in *April*, a fat Soil, though
omething ſtiff; in *June* you may thin them
y Tranſplantation, prune their Roots and
Tops,

Tops, ſet them at three Inches Diſtance, and continue to crop them till *October.* The *French* Seed is beſt, ours not worth the While.

Onions by Seeds in *March*, a rich, warm, light Mould, well mixt with rotted Compoſt and ſifted *Pigeons* Dung; give them a thin Coat or Covering of Earth; ſow alſo Beginning of *July* for *Shibols*; 'tis not worth the Pains to win their Seed.

Plant Off-ſets of *Sives* in *Spring*, nine Rows in the Bed, in a rich and low Ground.

Collie-Flower is a fine *Collie*, ſow on the early hot Bed, (for its hard to get *Winter* Plants through to Purpoſe) ſow thin and ebb, and carefully preſerve them from Colds while young: If you water, imbibe *Pigeons* Dung, but touch not their Leaves therewith; when their Leaves are three Inches broad, tranſplant them into a very fat and well mixt Soil, two Foot Diſtance, prune their Roots and Tops; and if any Worm Knots, cut them away; and in ſetting keep their Hearts immediately above Ground: And all along keep them clean of Weeds, under hanging and withered Leaves; let them not ſuffer Drought while young, make the Water like Wort by Dung. If the Ground and Seed be good, you may expect good Heads; which if you ſpend not altogether before Froſts (which ſpoils them) take them up in a dry Day, and ty them in Pairs to hang in a dry Room for uſe. The beſt Seed comes from *Candia.*

There be many *Cabbages,* ſow the *Savoy,* and ſuch tender Sorts, as *Collie-flowers,* albeit not ſo tender ; ſow the great, white and red, the full Moon in *July,* plant them forth in *October,* three Foot Diſtance in well dunged Ground ; ſet ſome alſo in *March,* but then the *Gard'ner* finds Multiplicity of Buſineſs, therefore 'tis his Wiſdom to put as much Work by Hand as can ſuffer it, at leaſt to have all his Grounds fallowed before *Winter.* You may take up and hang your *Cabbages* in *November,* as *Collie-flowers* ; but plant ſome of of the beſt and hardeſt for Seed, up to the Neck: When they ſhoot, ſupport with Stakes and Ropes ; when full, cut and lay on a Cloth to perfect : But choiſe the middle, rejecting the lower Branches.

Catch *Snails* and *Worms* that gnaws the young ſprouting Plants, and ſet Nets for Birds at the ſame Time. The Reaſon why old *Cole* is full of green *Worms,* is dry poor Ground never weeded ; or otherwiſe, unqualified Dungs, and unſeaſonably applied : If they would trench, mix, *&c.* [as in *Chap.* II.] that their Ground may be clean and ſweet, they ſhall ripen accordingly.

Common *Colworts* are uſually ſown at *Spring,* planted in *Summer,* and eaten through *Winter,* and at *Spring* when other green Herbs are ſcarce, you may alſo ſow and ſet them with *Cabbages*, and reap their Seeds accordingly.

Thirdly, Of ſweet Herbs, as,

Clary by Seeds and Off-ſets in *April*, at which Time you may ſlip and ſet *Tanſie*, *Sage*, *Coſt*, *Mint*, *Baum*, *Winter* Savory, *Thyme*, *Pennyroyal*, *Wild Marjoram*, *Maudlin*, *Fennel*, &c. prune their Tops and Fibres, and plant in a Garden Soil, eight Rows in the Bed; they all continue long, but cutting their Tops in growing Time, makes them more durable; and cut them all within a Handful of the Ground at *Auguſt*, that they may recover againſt *Winter*. You may likewiſe ſow the Seed of *Fennel*, *Thyme*, *Winter* as well as *Summer Savory*, *Dill*, ſweet *Baſil*, &c. in *April*, a warm cultured Soil, ordering them as above; the three laſt are *Annuals*. If you would have ſweet *Marjoram* early, raiſe it on the hot Bed, the ſweet *Baſil* requires the ſame; ſow it alſo the latter End of *April*, in a warm fat Soil, eight Rows in the Bed: You may ſow it in *July*, and tranſplant when two Inches high in a warm Border at a *South* Wall; 'tis Seed, with *Baſil*, comes from hotter Countries. Sow *Roſemary* Seed in *April*, or at the ſame Time take its Slips or Cuttings, and twiſt them a little at the Ends, and dibble in good Soil, on a *South* Wall Border: But cut not their Tops, they eaſily root being watered in Drought with Soap Water; you may ply it to the Wall as Shrubs.

Fourthly, I am now come to Roots, they
equire a light Earth, deep trenched, fat Sand
ixt with Sheeps Dung: 'Tis convenient that
be dunged a Year before, becauſe new Dung
akes them fork.

Plant *Liquoriſh* Off-ſets and Runners in *Fe-*
ruary in this Soil, well ſtirred and mixt, af-
r which do not tread, ſave in the Furrows,
x Rows in the Bed, and cover all the Inter-
als with Leitter topt with Sand, but let the
lants be free; for this is to keep out Drought
e firſt *Summer*; keep them always clean
f Weeds, and cut their Stalks near *Winter*:
et it ſtand three *Summers* in the Ground, and
November, take it up thus, begin at one
ide of the Plot, and make a Trench the whole
epth of their Roots, taking it out carefully
not breaking it) at the Face of the ſame,
ſting the Earth ſtill behind as you proceed;
hen cut off the Plants, to divide carefully, and
y them amongſt moiſt Sand in a Cellar till
tting Time: And becauſe it ſtands three
eaſons, you may have three ſeveral Planta-
ons, ſo ſhall you have it to take up yearly,
you plant accordingly.

Scorzonera by Seeds and by Off-ſets, (that
by parting the Tops of the Root) ſow in
e *Spring*, or when its Seed ripens promiſ-
uouſly in the Beds: It continues many Years
the Ground, and grows ſtill the greater,
nd is in Seaſon at all Times for eating, tho'
yearly run to Seed.

Order *Carvy* as *Scorzonera*: Its Roots is eaten as *Parſneips.*

Skirrets by Seeds, but chiefly by Off-ſets, plant the ſmall Sets, not many in a Bundle i *March*, eight Rows in the Bed; when thei Stalks begin to wither, fall a ſpending them, and as you break off their Roots for uſe, la their Tops or Sets in Ground covered a littl till the *Spring* for Planting; (I cautioned yo before to change the Crops) theſe you ſpend not ere the Froſts come, hard Houſe among very dry Sand, that you may have them whe you will, rather as be barred from them b the Froſts.

Parſnieps by Seed only, ſow in *March* promiſcuouſly over the Bed, but thin; ſpend and houſe them with *Skirrets*, and cut quite of their Tops, leſt they grow amongſt the Sand reſerve ſome of the beſt untaken up for Seed which will ripe the next Seaſon, chooſe th middle ſtem Seed.

Beat-Rave may be ordered in all Caſes, as *Parſneeps*, ſave that you may begin ſoone to eat them (*viz.* aſſoon as they are big enough) tho' they laſt as long, beſides theſe yo pickle.

Carrots as *Beat-Raves.*

Turneips by Seeds in *April*, *May*, *June* *July*, (the firſt proves not beſt) promiſcuouſl over the Bed, very thin, and ſcarcely any Covering of Earth. When they riſe, thin them

lat

late *Turneips* may be houſed, as *Parſneips*, and Seeds reapt accordingly.

Horſe Raddiſh by Off-ſets, and laſts long too.

The *Garden Raddiſh* by Seed only; you may raiſe for early in the hot Bed Caſes, hence every 20 Days, with other Sallading through *Summer*, becauſe they quickly ſhoot for Seed. Sow *Black Raddiſh* in *Auguſt* and *September* for *Winter*, theſe Seeds next Seaſon.

Potatoes being cut in as many Pieces as you pleaſe, providing there be an Eye at each Piece, and planted in *March*, five Rows in the Bed, plant not deep, neither in wet or ſtiff Ground; ſpend them with *Parſneips*, and in houſing, ſpread only through a Board Floor.

Parſly is alſo a Root for the Kitchen, and ſo is *Fennel*; I ſpoke of them before, only you may houſe ſome for *Winter*.

See *Part Firſt, Chap.* V. for the orderly planting of Kitchen Herbs.

Fifthly, Weeding (I think) may be accounted the moſt material Part of *Gard'nery*. The learned *Evelyn* takes Notice of it; his Directions are, ‘ Weed and haw betimes, continue Weeding before they run to Seed, which is of extraordinary Importance both for ſaving of Charge, Improvement of Fruit, and the neat maintaining of the *Gardens*; wherefore (ſays he) keep your Weeds down, that they grow not to Seed, and begin your Work of hawing aſſoon as they begin almoſt to peep; by 'this Means you will diſpatch more in a few 'Hours than afterwards in a whole Day; 'whereas if you neglect it till they are ready 'to ſeed, you do but ſtir and repair the Earth 'for a more numerous Crop, and your Ground 'ſhall never be cleared.

And this agrees with what I had written my ſelf, *viz.* deſtroy Weeds while young, for when they have grown ſtrong, and got deep Rooting, they'll not only take the Nouriſhment from the good Plant, but there will be ſuch Difficulty in grubbing them out, that the good Seed or Plant is in Danger of being deſtroyed; but if you ſuffer them to bear and ſow their Seeds, then (beſides that they exhauſt much more of the Subſtance of the Ground) you ſhall find the Work intollerable, for they'll poiſon the whole Ground, inſomuch that one Years Seeds will coſt many Years weeding; and therefore prevent theſe Things by keeping down the Weeds, ſo ſhall your Work become eaſie, and *Gardens* handſome.

In Beds where Hawes cannot go, you muſt weed with your Hands on both Sides, ſitting in the Furrow on a Straw Cuſhion, pull up the Root cleanly, taking the Help of the Weeding-Iron where needful; but make Uſe of the Haw in all the Intervals, drill Beds, Nurſeries, Furrows, Table or Paths, whereby one will cleanſe more than ſome ſix by weeding with their Hands; and if dry Weather, they'll wither while they ly cut, otherwiſe rake them in Heaps, and ſpread again when rotted, or carry them to ſome open Trench or Pit, and ſtill be viſiting your Plantations, that aſſoon as you perceive a Weed peep, you may check it.

CHAP. VII.

Of ſome Phyſick-Herbs, Shrubs and Flowers.

Firſt, ALL the Herbs in the laſt *Chapter* are Phyſical, and having ſpoken to them already, I have the leſs to do here; however there is more, as,

Garden Rue, I uſe to environ *Sage* Beds with *Rue*, (the Soil not moiſt, mixt with Aſhes, not Cinders) you may box Borders with it, as well as *Lavender* or *Hyſop*; which laſt is alſo increaſed by Seed; and ſo is *Golden-Rod*, *Feverfew*, *Vervain*, *Celandine*, they laſt many Years, and ſo doth

Wormwoods, *Comfry*, *Solomon's Seal*, *Catmint*, *Callamint*, *Elacampine*, *Maſterwort*, *Wall-Pellitory*, *Garden-Germander*, *Betony*, *Camomile*, *Swallow-Wort*, *Southern-Wood*, *Lovag*, *Dwarf-elder*,

elder, *Harts-Tongue*, *Maiden-Hair*, *Aſrum*, *Dropwort*, *Birthwort*, *Horhund*, *Spignel*, *Agrimony*, *Briony*, *Bears-Breach*, *Sea-Holly*, *Madder*, *Rhubarb*, *Dog-Mercury*, all which are eaſily increaſed by Off-ſets in the *Spring*, and requires to be cut a little above Ground at the Beginning of *Autumn*.

Angelica, *Sprug*, *Scurvy-Graſs*, &c. are Annuals, but yield Seed the ſecond Year from ſowing; you may ſow when ripe, or in the *Spring*; but, if you prevent their Seeding by cutting, they will laſt longer.

Bleſſed-Thiſtle, *Thorn-Apple*, *Tobacco*, *Stinking-Arag*, *Oak of Jeruſalem*, &c. yielding Seed, and dying the firſt Year; therefore ſow yearly in *April*. The *Virginia Tobacco* requires the hot Bed, the reſt a good fat light Soil, as doth *Angelica*. You muſt not bury *Stinking-Arag* deep; ſow it as *Purſlain*.

There be many more, beſides Multitudes in the Fields, Woods, Glens, Meadows, &c. of good Uſe, many whereof you may bring into the *Garden*, as I have done. I forbear, ſeeing the Order is in *Part Firſt*, *Chap.* V. and the Ways of Propagation in the *Firſt* of this, and how to Order the Ground in the *Second*. I do not approve of planting the Clod with them brought out of the Fields, for it rots and turns ſowre, and ſo kills the Plant, (albeit you may keep the Clod about it till you come home, but) then part it off carefully, prune their fibres a little, make the Holes with the Trowal, and plant in a connatural Earth to that of their wonted Abode, well ſtirred and aired, which is an excellent Mean that makes all Plants proſper, and therefore diligently to be obſerved.

Secondly, Of *Shrubs* that loſe their Leaves in *Winter*, the choiſeſt whereof are,

Roſes of many Sorts, they are increaſed by Suckers and Layers. The *Musk* may be budded on the *Eglantine*, and ſet at a Wall. The *Double-Yellow* bears faireſt Flowers; if you bud the *Single-Yellow* on a *Frankfort*, and re-bud the *Double-Yellow* thereon (I have done it immediately on the *Single*) planted as a *Standard*, a little ſhaded in *Summer*, and kept clean of Suckers and ſuperfluous Buds; and any that blow not freely, may be ſlit at the five Diviſions of the Hoſe.

Prune your *Roſes* after the Flower is paſt, *viz.* before the full Moon in *October*, cut behind a Leaf-Bud, and cleanſe them of dead Wood; and if you deſire fair Flowers, ſuffer but one Stem on a Root, and keep it low, and every fifth Year cut them down to the Ground, renewing their Earth with old Cow Dung.

Jaſmines, *Honey-ſuckles*, *Pipe-Trees*, &c. by Suckers, Layers and Cuttings; ſee *Chap.* I.

Mezerion by Seed, as *Hawthorn*; they ly as long.

Of *Shrubs* that be ever green, there is *Box*, *Savine*, *Arbor-vitæ*, *Tamerisk*, *Privite*, &c. by

Suckers, Layers and Cuttings, in *April*: A Shade, and moſt fat Soil, till rooted.

The *Cherry-Bay* is an excellent Green, and not very apt to blaſt, there is alſo *Lauruſtinus*, *Philyrea*, *Alaternus*, (I love not *Pyracantha)* *Juniper*, (I care not for *Ever-Green Oak* and *Cypreſs)* all by Seeds, which muſt be couched in Sand before *Winter*, and ſown in *April* to riſe that Seaſon, except the *Juniper*, which lies till the next; tranſplant the ſecond Year after they riſe in *April*; remove by a Trowal, with Earth at their Roots, toping ſuch Roots as appears without the Cold, and leſſen the Head by thinning it. See where I have ſpoken of *Holly*, for the ſame Rules may be obſerved for theſe to be ſpread on Walls; but ſave the Top of *Standards*: They do all well by Suckers and Layers alſo, except *Cypreſs* and *Juniper*. Be careful to defend your ſeedling Greens, while young, from *Spring* Blaſtings, yet do not choak them for Want of good Air.

The *Pine*, *Cypreſs* and *Ever-green Oak*, (the laſt in ſpecial) will ſcarce endure a Removal from the Seminary; therefore ſow them in Drills, two Foot Interval one Way, and Half a Foot the other; and the next Year after they riſe, make a Spade-bit Trench between the Rows, and work in cautiouſly, till you diſcover the running down Root at one Side, which you muſt top with the Pruning-Knife, and level in the Earth as it was, cut off ſome

Side Boughs, and thin the Head; let them remain two Years, then remove and plant them, as is inſtructed.

Greens that are beſt worthy our Eſteem, are *Scots-Fir* ſor Standards, *Holly* for Hedges, the *Cherry-Bay* for Walls, or barren creeping *Ivy*, which will neither blaſt nor ſeek ſupporting.

There is *Strawberry-Tree*, and *Tree Nightſhade*, who are tender: But,

Indian and *Spaniſh Jaſmines*, *Myrtles*, *Oleanders* and *Orange-Tree*, yet tenderer; wherefore, I am not very curious of them, yet there is ſeverals in this Country has them, and are at great Pains in governing them, by ſetting them in Caſes, ſmall Stones at the Bottom, filled with Earth, mentioned for fine Plants, *Chap.* II. *Sect.* 6. at the Seaſon *Chap.* I. *Sect.* 4. Houſing in *Winter*, between the latter End of *September* till Beginning of *May*, giving them freſh Earth as they retire, and expoſe them, *i. e.* takes out the upper exhauſted, ſtirring that below with a Fork (not wounding the Roots) and puts in its Place ſome rich and well conſum'd Soil, watering on all Occaſions with Water, wherein Nolts Dung is ſteeped (not touching Leaves or Stem therewith) whereof they are ſparing while remaining in the Houſe, except after long Froſts, in whoſe Extremity is uſed a little *Charcoal*, free of Smoak, ſunk a little in the Floor, and in warm Days, free of Froſts and Fogs, acquainted

ted with the Air, but ſhut cloſs at Night again, and when they may, expoſe to the free Air, yet even then ſet them a Week in the Shade, having firſt bruſhed them from Duſt, &c. For my Part, I rather be in the Woods, Parks, Orchards, Kitchen-Garden, or Fields, meaſuring, planting and improving the Ground to beſt Advantage, However I will here take a little turn among the Flowers.

Thirdly, Of fibrous rooted Flowers.

Gelly-Flowers are the beſt, and are increaſed by Off-ſets, Layers, Slips and Seeds. A light loamy Earth, well mixt with rotted Soil of Cows and Sheeps Dung a Year before-hand.

Albeit I have raiſed many double by Seed of my own reaping; yet the ſureſt Way to preſerve the beſt, is by laying, becauſe Seedlings are apt to dy after they have born a Flower: How to lay, ſee *Chap.* I. *Sect.* 6. Plant out your Layers at *Spring*, and give theſe in Pots freſh Earth, as the *Orange-Tree*, and yearly cleanſe the old Roots of withered, dead and rotten Leaves, and leave not above three or four Spindles for Flower (if choiſe) and nip off ſuperfluous Buds, leſt they blow and bear themſelves to Death; and if any burſt, ſlit, as I directed with *Double Yellow Roſe*. At *Midſummer*, ſhade from Afternoons Sun a little, theſe that blow, ſupport them againſt Winds, ſet Hooves amongſt them for catching *Erwigs* their Enemies; water well in Drought, ſparing their Leaves, preſerve the

Choiſe

hoiſe from too much Rains, by laying the
ots on their Sides, ſtrike off the Snow when
lies too weighty on them; theſe you will
ot to bear Seed, cut their Stalks aſſoon as
ſt the Flower.

Stock-Gelly-flowers by Seeds or Cuttings;
e Seed of ſingle will produce double, but
e more Leaves the Mother hath, the doub-
r ſhall the Product be; ſow and plant with
arnations or *Gelly-flowers*, they affect a Soil
ith them.

Prime-Roſes, *Couſlips* and *Bears-Ears*, by
ff-ſets in the *Spring*, or when the Flower is
ſt, (viz. *July*) they affect a good natural
rth, well mixt with rotten Nolts Dung;
e finer Sorts loves a little Shade in *Summer*;
in Pots or Caſes, you may tranſport them
ſuch at Pleaſure.

Great Varieties may be raiſed from Seed
wn in Pots, the Soil aforeſaid, mixt with
illow Earth in *October*, take heed of deep in-
rring *Bears-Ears*, ſow them as *Purſlain*;
the Pots and Caſes with them at the *South*
de of a Wall till *April*, at which Time they
ring, and muſt be now retired a little as is
d; tranſplant in *July* to flower next *Spring*,
d neglect not to Earth up ſuch as are apt
work out of Ground, namely *Bears-Ears*.

There is many others, as,

Noble Liverwort, *Spring Gentianella*, *Vir-
es-Bours*, &c. and are increaſed by Off-ſets
the *Spring*, or by Seeds at the ſame Time;

as alſo *Columbins*, *Holibocks*, *Cransbill*, *Ca pions* and *Conſtantinople-Flowers*, *Catch-Fli Pinks* and *ſweet-Williams*, *Throat-Worts* a *Bell-Flowers*, &c. or *Daſies*, *Violets*, *Spide Wort*, *Double-Marſh*, *Mary-gold*, by Off-ſe any Time when ſpringing.

Of *Bulbo* and *Tuberous* Roots, there is

Tulipas of great Varieties, increaſe the by Off-ſets when their Stalks withers, whi is generally about *June*, *July* or *Auguſt*, th is alſo the Seaſon for other *Bulbo* and *Tubero* Roots; keep them in a cool, but dry Plac till *September* or *October*, and then plant the in a light ſandy Earth, with fat Soil, an Inc below the *Bulb*, ſo that the Roots may reac it, remove every three Years, and oftner they affect not the Soil: They may be raiſe from Seed, but its tedious.

Anemonies the ſame very Way as *Tuli* except that they require a rich Earth, mi with rotten Dung, ſo that it be not rank.

Apply this alſo to *Ranunculuſes* of the fine Sorts.

Cyclamine Roots may be carefully parted i *July*, and ſet in the Soil for *Tulips*.

Crocuſes and *Cholcicums* as *Tulips*, b requires a mixt rich light Soil: And with

Iriſh Bulboſes (but loves a dry Bed) a *Narciſſuſes*, *Ornithogulams*, *Jacenths*, *Heſ* *Aconites*, *Hellibores*, &c.

Likewiſe *Iriſh-Tuberoſus*, *Crown-Imperial*, d *Lilias* of ſeveral Sorts, *Pionies*, *Cynoſor- s*, &c.

Indian Tuberoſe is tender. See Eſq; *Evelyn*'s *llendar*.

There are many Annuals may be ſown in ts, and plunged in hot Bed, and ſome un- r Glaſs Covers, eſpecially them ſown in *Au- mn*; as,

Amaranthus, *Marvel* of *Peru*, *Flos Afri- nus*, *Convolvulus*, &c. In *April* you may w them on the cold Bed, if good fat warm rth, together with double *Marygold*, *Cyanus*, *igelly*, *Delphinus*, *Anterhinum*, *Double Gar- n* and *Corn-Poppies*, *Fox-Gloves*, *Flos Solis*, *os-Adonis*, &c.

But if you would be further ſatisfied in the arieties of Plants, conſult the learned and oſt ingenious Mr. *James Sutherland*'s Cata- gue, Phyſick Gard'ner at *Edinburgh*.

Fourthly, I ſpoke before of preſerving Plants Houſing. There is ſome that cannot en- re the Houſe, who muſt be ſet at the *South* all, the Pots ſunk three Inches below the rface covered with Glaſs, firſt clothing them ith ſweet and dry Moſs; or in prepared xed Beds, with folding Glaſs Frames to lift p and down at Pleaſure; becauſe in all ſea- nable warm Blinks of the Sun and Showers, ey may be diſcovered of all that covers them, us treat choiſe *Ranunculus*, *Anemonies*, *Amaranthus*,

maranthus, &c. neglect not to repair th Earth, as (in *Sect.* 2.) the *Orange Tree.*

Plants ſtanding dry in *Winter*, earthed u or the Earth made firm about them, are go Means of Preſervation; neglect not to clean all your Plants of under and withered Leave ſuperfluous Off ſets, *&c.* See *Chap.* I. *Sect.* 1 and ſee *Part First*, *Chap.* VI. *Sect.* 7. for th orderly planting of Flowers. And I hope th *Reader* will excuſe for this Brevity, ſeein each *Chapter* herein would merit a *Book*, ne ther will Leiſure permit me at preſent.

THE
METHOD
OF
nting an ACRE of GROUND,
WITH
mber-Trees and Under-Wood; With
he PROFITS which will ariſe from that
PLANTATION in Nine Years, Se-
enteen Years, and Twenty five Years af-
er Planting.

IF we conſider the many Advantages that *Great Britain* in general hath received from Timber of its own Growth; how by its powerful Fleets it hath gained the Dominion of the Seas, and now enjoys the Benefits of an univerſal Commerce, without mentioning the Advantages it affords to every particular Owner of it: 'Tis wonderful to me, that the propagating of Timber, a Commodity
luable and ornamental, ſhould be ſo little encouraged now-
ys among us, when our natural Store is ſo near being con-
d, that to all Appearance, in a few Years Time, we may
rced to ſeek it in foreign Countries.

ow, if I may be allowed to judge in this Caſe, I conceive
the preſent Decay of our Timber, may depend uponone
her of the following Reaſons.

ſt, That the making new Plantations will be an immedi-
xpence to us: Or,

Secondly, That we cannot expect to reap any Profit to ſelves from ſuch Plantations as might be made in our Tim Or elſe,

Thirdly, That many Gentlemen, who are already Maſters Woods, receive little Profit from them for want of due C and Management.

I ſhall paſs by the Firſt and the Laſt of theſe Objectio they being anſwered in the forgoing Chapters; And ſwer the Second, *viz*. That we cannot propoſe to reap Profit to our ſelves from the Plantations which might be m by us: But I hope the Method which I ſhall herein prop will give full Satisfaction to that Point.

For which End I would recommend, that every Plantati which ſhall be made, either in this preſent Age or hereafter, conſiſt partly of *Forreſt* or *Timber Trees*, (for I know no *Bar* *Trees*, as they are commonly called here) and partly of *Under-W*

Now the *Under-Wood* which I propoſe to be planted and termixed among the *Standards* or *Timber Trees*, may be cut Eight or Nine Years after planting, and ſo from Time to Ti every Eight Years will produce a very conſiderable Return, will appear hereafter in a ſtated Accompt.

2dly, The Plants for *Under-Wood*, which will encompaſs every Side the young *Timber Trees*, will not only ſhelter th from Blaſts of Wind which might be hurtful to them, but alſo (by keeping off the circumambient Air) draw them i ſtraight and tall Trees, until they can ſhift for themſelv and are ſtrong enough to bear the Severity of the Weather.

But to proceed, let us make Choiſe of ſuch Ground to pl upon, as may not be thought proper for Corn, or at leaſt ſu as will yield only a poor Crop of Grain: I ſuppoſe ſuch La will be worth about Five Shillings *Sterling per* Acre by Year; and by all Means let it be (if poſſible) near ſome N vigable River, for the greater Eaſe and Cheapneſs of Car age: Now, as I have before hinted, that as the Land is, muſt we allot the proper Plant for it, I only wiſh it may deep enough to nouriſh the *Oak* and *Ilex*, which are tap-roo Plants, and therefore delight in deep Soil.

Suppoſing then we are fortunate enough to meet with Acre of Ground proper for *Oaks*; we muſt firſt encompaſs with a good Fence, and then either dig or plough the Land a proper Seaſon, to ly fallow for ſome Time, till the Turf mellowed and fit for our Purpoſe.

An Acre of Ground contains 160 Square Perch or Roo each Rood being 16 Foot and a Half; this Quantity of La muſt be fenced about with a Ditch ſix Foot wide, three Ro

uickſets planted upon the Sides of its Bank, at a Foot Di-
ce from each other, and a dry Hedge on the Top.

labouring Man, working for one Shilling *per Diem*, may
pare nine Foot of the Ditch in Length in one Day, and cut
es and Buſhes, and make about five Rood of the dry Hedge
Day, ſo that he may prepare the Hedge, make the Ditch,
t three Rows of *Quickſets*, and pay the Expence of them
the Rate of Two Shillings *per* Hundred, for about Three
ings the Perch, ſo will the whole Charge of making a
e about an Acre of Land, be ſeven Pounds ſixteen Shil-
; but we may fence in two Acres of Land after the ſame
, being 32 Perch long, and ten Perch wide, for nine
nds ſix Shillings; a Pole or Perch planted with three Rows
uickſets, will take up about 48 Plants, ſo will there be re-
ed to plant about an Acre 2496 Plants.

hus having provided a good Fence to defend our young
tation from Dangers of Cattle, and other Inconveniences,
next Thing to be done, is to prepare the incloſed Land
Planting, which may be performed ſeveral Ways.

ppoſing the Land to be encumber'd in the worſt Manner
Buſhes, *Whins* or *Furze*, &c. ſo that a Plough cannot be
upon it, then may it be dug and cleanſed for about Six-
e the Square Perch: The whole Acre, if it be dug at that
, will come to Four Pounds: But if the Ground ſhould
en to be in that State, that a Plough can work in it, an Acre
be ploughed for about Twelve Shillings.

he Land being thus prepared, one Acre will contain forty
ts of *Oaks* at 33 Foot Diſtance; and, as I have hinted be-
that all tap-rooted Trees are endangered by removing,
that when they are tranſplanted, they ſeldom come to the
ection of thoſe which are raiſed from Seed, and remain al-
in the ſame Place; I ſhall therefore recommend, that
Beds of good natural Soil be prepared on the Acre of
d, at the aforeſaid Diſtance of 33 Foot from each other,
that in each Bed, five or ſix *Acorns* be planted about four
es deep in *February*, which Seaſon I chuſe rather than the
umn, becauſe the overwet Seaſon of ſome *Winters* might
he Seeds, or *Mice*, *Squirrels*, and ſuch like Animals, might
roy them.

heſe forty Beds may be well prepared by one Man in three
, at one Shilling *per Diem*, two hundred *Acorns* may be
h about Sixpence, and the Planting of them be worth a-
Sixpence more, which makes in all Four Shillings.

he Acre of Land being thus ſown with *Oaks*, we may in-
w the remaining Part of the Ground with *Aſh-kies*, which
have

have been kept the *Winter* in dry Sand; theſe will turn to ve good Account, as alſo plain *Seeds*, *Nuts* of ſeveral Kinds, *Ho* and *Sloes*, conſidering that the Land is already dug or ploug for our Purpoſe.

One Buſhel of *Aſh-keys* may be worth Two Shillings, t ſowing of them One Shilling, and the harrowing the Grou after ſowing will be worth Five Shillings more, in all Eig Shillings. When the *Oaks* and *Aſhes* are come up, they muſt haw'd and cleanſed from Weeds, one Man may do this Wo in three Days, leaving the Diſtance of three Foot between t *Aſhen* Plants; the Expence of this Weeding will be three Sh lings; for I reckon a Man's Work at One Shilling *per Die* becauſe I ſuppoſe ſuch Plantations will only be made in tho Places where Land is cheap, and conſequently every Thing el is valuable in Proportion.

The ſecond Year, we may draw ſome of the young *Oak* leaving a ſingle Plant in each Bed; now it is likely, that a the *Acorns* which were put into the Ground may not come u therefore I would adviſe, as the ſureſt Way to have our Expectations anſwered from the Seeds we ſow, to try the Goodneſs of them before they are ſown, which may be done by pu ting them in Water, and planting only thoſe which ſink quick to the Bottom.

An Acre of Land thus fenced, dug, cleanſed and plante comes to Twelve Pounds and Eleven Shillings, and two Acr dreſſed and planted in like Manner, will coſt Eighteen Poun Sixteen Shillings.

But if the Land will be clean enough to admit the Plough, th the Charge of Fencing, Planting, &c. of one Acre, will b Nine Pounds Three Shillings, and the Expence of two Acr dreſſed in the ſame Manner Twelve Pounds.

In Nine Years after this Plantation has been made, the *A* Plants will be fit to cut for Poles or Hoops, worth upon t Place Ten Shillings *per* Hundred: If the Plants ſtand at a Yar Diſtance from each other, the Acre of Land will then contai about 4800 Plants, which may be ſold for Twenty four Poun *Sterl.* The *Quickſet* Fence muſt likeways be cut down, and wi yield about ten Load of Buſhes, we will ſuppoſe them on worth Five Shillings *per* Load, altho' near *London* they ſell f four Times as much.

The whole Charge of Fencing, Digging and Planting, a Acre of Land with *Oaks* for *Timber*, and *Aſh* for *Under-Woo* with the Profit of the firſt Nine Years Growth, may be ſee in the following Accompt.

Accom

ccompt of the 9 Years after Planting, or 1ſt Cutting.

	L.	s.	d.
Xpence of Fencing, Digging and Sowing an Acre of Land for *Timber* and *Under-Wood*	12	11	0
tereſt of the aforeſaid Sum for 9 Years, at 5 *p. Cent.*	5	12	6
r cutting 4800 *Aſhen* Poles, one Man, five Days, at 1 *Shill. per Diem* - - -	00	05	0
nt of the Land for 9 Years, at 5 *Shill. per* Acre *er Annum* - - - -	02	05	0
Nine Years Expence - - -	20	13	6
ceived for 4800 *Aſhen* Poles, at 10 *s. per* 100 -	24	00	0
ceived more for 10 Load of *Buſhes*, at 5 *s. per* Load	02	10	0
Nine Years Gain - - -	26	10	0
Nine Years Expence - - -	20	13	6
at Profit of the Plantation in 9 Years -	05	16	6

Aſter this Cutting, we may cut again in Eight Years Time, d expect 4 or 5 Poles on each *Aſhen* Plant.

ccompt of the 17 Years after Planting, or 2d Cutting.

	L.	s.	d.
Ent of the Land for 8 Years at 5 *s. p. Annum*	02	00	0
Expences of cutting 19200 Aſhen Poles ckoning 4 to each Plant) one Man 20 Days, at *s. per Diem*	01	00	0
Seventeen Years Expence - -	03	00	0
ceived for 19200 *Aſhen* Poles, at 10 *Shill. per* Hundred - - - -	096	00	0
ceived more for 10 Load of *Buſhes*, at 5 *s. per* Load - - -	002	10	0
in'd clear of Expences by the firſt Cutting	005	16	6
e Intereſt which might be gain'd on 5 *l.* 16 *s.* 6 *d.* in 8 Years, at 5 *per Cent.* is about -	002	06	0
Seventeen Years Gain - -	106	12	6
Seventeen Years Expence -	003	00	0
at Profit of the Plantation in 17 Years Time	103	12	6

Accompt of 25 Years after Planting, or 3d Cutting.

	L.	s.
Rent for 8 Years at 5 *s.* the Acre *per Annum*	02	00
Expence of cutting 19200 *Aſhen* Poles, one Man 20 Days, at 1 *s. per Diem* -	01	00
Twenty five Years Expence -	03	00
Received for 19200 *Aſhen* Poles, at 10 *s. per* 100	096	00
Received for 10 Load of *Buſhes*, at 5 *s. per* Load	002	10
Gain'd clear of Expences by the ſecond Cutting	103	12
The Intereſt which might be gain'd on the aforeſaid Sum in 8 Years at 5 *per Cent.* -	041	08
Twenty five Years Gain - -	243	10
Twenty five Years Expence - -	003	00
Neat Profit of the Plantation - -	240	10
To which may be added the Value of the 40 *Oaks* then growing in the ſaid Plantation, worth 10 *s. per* Tree - -	020	00
In all - - - - -	260	10

By the foregoing Accompt, we find that an Acre of La planted as is directed, may produce 103 *L.* 12 *s.* and 6 *d.* i the Space of 17 Years, clear of all Expences of Planting, a Value of the Land, and the *Oaks*, if they are ſtill continue growing, will yet produce a more conſiderable Return to th Owner, or his Family after him.

By the Example of this Plantation, others may be made wi different Kinds of Trees; and if the Planter has due Rega to the Soils proper to what he deſigns to Plant, he may exp a Return for his Labour and Induſtry, anſwerable to what have mentioned in this Accompt; and if his Ground happ to be already fenced for his Purpoſe, and is capable of admitti a Plough upon it, he may yet reap a much more conſidera Profit from his Plantation.

☞ N. B. *Mens Wages are here calculated at a Shilling p Day, but they may be had at Eight Pence p Day, which will make the Profit the greater.*

Anno Primo
Georgii Regis.

An Act to Encourage the Planting of Timber-Trees, Fruit-Trees, and other Trees, for Ornament, Shelter or Profit; And for the better Preſervation of the ſame; And for the Preventing the Burning of Woods.

WHEREAS the Raiſing and Planting of Timber-Trees, Fruit-Trees, and other Trees, is of very great Profit and Advantage to the Kingdom of *Great Britain*: And whereas divers Lewd and Diſorderly Perſons, and others, have Riotouſly, and ſometimes in a Clandeſtine and Malicious Manner, Broke down, Cut up, or otherwiſe Deſtroyed ſuch Timber-Trees, Fruit-Trees, and other Trees, to the great Diſcouragement of he Planters and Owners thereof, and the Parties whoſe Trees re ſo deſtroyed, are remedileſs, for lack of knowing the Paries ſo Offending: Therefore, for the better Encouraging of Perſons to Raiſe, Plant, and Preſerve Timber-Trees, Fruit-Trees, and other Trees, in Fields, Hedge-Rows, Gardens and Walks, and elſewhere, either for Ornament, Shelter, or Profit, and for the preventing the Malicious Deſtroying or

Spoiling the ſame, and to give Remedy to ſuch Perſons for making them Satisfaction for all Damages to be Occaſioned by ſuch Breaking down, Cutting up, Spoiling, or otherwiſe Deſtroying ſuch Trees; Be it Enacted by the King's moſt Excellent Majeſty, by and with the Advice and Conſent of the Lords Spiritual and Temporal, and Commons in this preſent Parliament Aſſembled, and by the Authority of the ſame, That if any Perſon or Perſons whatſoever, from and after the Twenty fourth Day of *June*, in the Year of Our Lord One thouſand ſeven hundred and ſixteen, ſhall maliciouſly Break down, Cut up, Pluck up, Throw down, Bark, or otherwiſe Deſtroy, Deface, or Spoil any Timber-Tree or Trees, Fruit-Tree or Trees, or any other Tree or Trees, the Perſon or Perſons, Body Politick or Corporate, that is, are, ſhall or may be Damaged by the ſame, ſhall receive ſuch Satisfaction and Recompenſe of and from the Inhabitants of the Pariſh, **Town**, Hamlet, Vill, or Place, where ſuch Tree or Trees ſhall be ſo Maliciouſly Broken down, Cut up, Pluckt up, Thrown down, Barked, Deſtroyed, Defaced, or Spoiled, and to be Viewed, and Damages and Coſts to be Recoverable, and Recovered againſt ſuch Pariſh, Town, Hamlet, Vill, or Place, by the Perſon or Perſons, whoſe Tree or Trees ſhall be ſo Maliciouſly Broken down, Cut up, Pluckt up, Thrown down, Barked, Deſtroyed, Defaced, or Spoiled in the ſame Manner and Form as Hedges and Dikes overthrown by Perſons in the Night, in and by an Act of Parliament made in the Thirteenth Year of the Reign of King *Edward* the Firſt, [Intituled, *Lords may approve againſt their Neighbours Uſurpations of Commons, during the Eſtate of particular Tenants*] are to be Levied, and Damages yielded; And where ſuch Offence or Offences ſhall be Committed in that Part of *Great Britain* called *Scotland*, to be Recoverable and Recovered by Way of Summar Action, and in the ſame Manner and Form as Damages in other Caſes of Riot are to be Recovered by the Laws there, unleſs the Party or Parties ſo Offending, ſhall, by ſuch Pariſh, Town, Hamlet, Vill, or Place, be Convicted of ſuch Offence, within the Space of Six Months, from the Committing ſuch Offence or Offences; Any Law, or Conſtruction to the contrary in any wiſe notwithſtanding.

And be it further Enacted and Declared, by the Authority aforeſaid, That it ſhall and may be lawful to and for any Two or more Juſtices of the Peace of the County, Riding, Diviſion, Stewartry, Regality, City, Town, Burrough, or Corporation, wherein any ſuch Offence or Offences ſhall be committed, or the Juſtices in open Seſſions, upon Complaint

them made by any Inhabitant of the aforeſaid Pariſh, Ham-
Vill, or Place, or of the Owner of ſuch Tree or Trees,
of any other, to cauſe ſuch Offender or Offenders to be ap-
hended for the Treſpaſſes and Offences aforeſaid, or any
them, and to hear and finally Determine and Adjudge all
every the Offence and Offences aforeſaid; And if ſuch Ju-
es ſhall Convict any Perſon or Perſons of all or any the Treſ-
ſes or Offences aforeſaid, then ſuch Juſtices immediately after
h Conviction, ſhall commit ſuch Offender and Offenders to
Houſe of Correction, there to continue and be kept to hard
bour for the Space of Three Months, without Bail or Main-
ze; and where there are no Houſes of Correction, in any
unty, Riding, Diviſion, Stewartry, Regality, City, Town-
Burrough, where ſuch Offender or Offenders ſhall be Con-
ed, the ſaid Juſtices ſhall commit ſuch Offender or Offen-
s to ſuch Priſon as is appointed for other Criminals, there
continue for the Space of Four Months; and ſhall alſo Or-
and Adjudge that ſuch Offender and Offenders ſhall be pub-
ly Whipt by the Maſter of ſuch Houſe of Correction once
ry Month, during ſuch Three Months, in ſuch Burrough or
rporation, if the Offence be committed therein, and not other-
e, or in the Market-Town, where ſuch Houſe of Correction
nds, or in the next Market-Town next adjacent to ſuch Houſe
Correction, and in the County where ſuch Offence ſhall be
nmitted, on the Market-Day of ſuch Town, between the
urs of Eleven and Two of the Clock; and in ſuch Places
ere there is no Houſe of Correction, the ſaid Juſtices ſhall
der and Adjudge that ſuch Offender or Offenders ſhall be
blickly Whipt by the Hand of the Common Hangman or Exe-
tioner once every Month, during ſuch Four Months, on the
rket-Day of any Burrough or Corporation where ſuch Of-
der ſhall be committed, or on the Market Day of ſome
wn, between the Hours of Eleven and Two of the Clock.

And it is hereby further Enacted, That before any ſuch Of-
der or Offenders ſhall be Diſcharged, he, ſhe, and they ſhall
d ſufficient Sureties for his, her, or their good Behaviour for
Space of Two Years thence next enſuing; Any Law, Cu-
m, or Conſtruction to the contrary notwithſtanding.

And whereas divers Woods, Under-Woods, and Coppices
ve been heretofore, and lately ſet on Fire, or Burnt, to the
eat Diſcouragement of Planting; Be it therefore Enacted
d Declared by the Authority aforeſaid, That if any Perſon
Perſons ſhall, from and after the ſaid Twenty Fourth Day of
ne, One Thouſand Seven Hundred and Sixteen, maliciouſly
on Fire, or Burn, or cauſe to be Burnt, any Wood, Under-

Wood, or Coppice, or any Part thereof, ſuch malicious ſe
ting on Fire, Burning, or Cauſing to be Burnt, ſhall be, a
is hereby Declared and made Felony, and the Offender or O
fenders ſhall ſuffer, and be liable to all the Penalties and Fo
feitures, as other Felons by the Law now are: And whe
ſuch Offences are committed in that Part of *Great Brit*
called *Scotland*, ſuch Offender and Offenders ſhall ſuffer a
be liable as Wilful Fire-Raiſers, according to an Act paſt
the Seventh Year of Her late Majeſty Queen *Anne*, Intitule
An Act for improving the Union of the Two Kingdoms; A
Thing in this Act contained, or in any other Law or Statute
the contrary in any wiſe notwithſtanding.

FINIS.

Anno Sexto

Georgii Regis.

n Act to Explain and Amend an Act paſſed in the Firſt Year of His Majeſty's Reign, [Intituled, *An Act to Encourage the Planting of Timber-Trees, Fruit-Trees, and other Trees, for Ornament, Shelter or Profit, and for the better Preſervation of the ſame, and for the Preventing the Burning of Woods*] and for the better Preſervation of the Fences of ſuch Woods.

WHEREAS divers Lewd, Lawleſs, Turbulent, and Diſorderly Perſons, and others, ſometimes in an Open, Riotous, and Tumultuous manner, and at other Times in a Clandeſtine, Malicious, and Private manner, do (without the Conſent of the Owners) enter the Woods, Wood-Grounds, Coppices, Plantations, Parks, and Chaſes, f divers Lords of Mannors, and other Owners and Proprietors ereof, and make great Havock and Deſtruction, by cutting own, breaking, throwing down, barking, plucking up, decing, ſpoiling, taking, or carrying away the Wood, or prings of Wood, Poles, Woods, Tops of Trees, Fruit-Trees, horns, Quickſets, and Underwoods, there growing or being, nd alſo by breaking open, throwing down, levelling, or deroying the Hedges, Gates, Poſts, Stiles, Railing, Fences, itches, Banks, Walls, or other Incloſures of ſuch Woods, ood-Grounds, Parks, Chaſes, or Coppices, and the Offenders therein, being not diſcovered, paſs with Impunity, to th great Diſcouragement of all Owners, Planters, and Preſerve of Wood, and to the great Wrong and Injury of ſuch Lord of Mannors, and other Owners and Proprietors of ſuch Wood Wood-Grounds, Parks, Chaſes, Coppices, Plantations, Timber-Trees, Fruit-Trees, or other Trees, Thorns, or Quickſets: And whereas ſome Doubts have ariſen whether the Offences committed in the Day-time, mentioned in an Act paſſe in the Firſt Year of His Majeſty's Reign, [Intituled, *An A to encourage the Planting of Timber-Trees, Fruit-Trees, an other Trees, for Ornament, Shelter, or Profit, and for the bette Preſervation of the ſame, and for the Preventing the Burning o Woods*] are Puniſhable by the ſaid Act: And whereas there i no Proviſion made in the ſaid Act for Puniſhing the Offence committed by Perſons who ſhall break open, throw down, level, or deſtroy, the Hedges, Gates, Poſts, Stiles, Railing Fences, Ditches, Banks, Walls, or other Incloſures of ſuch Woods, Wood-Grounds, Plantations, and Coppices: Therefore for the Explaining and Amending the ſaid Act, and for Remedying the ſeveral Miſchiefs herein before mentioned, and for the better Preſerving of all ſuch Wood-Springs, or Springs of Wood, Poles, Quick-Woods, Plantations, Underwoods Woods, Coppice-Woods, Gates, Poſts, Stiles, Railing, Fences, Hedges, Walls, and other Incloſures of Woods, from being unlawfully cut, taken, ſpoiled, broken, burnt, deſtroyed, defaced, or carried away; and for the better Diſcovering and more effectual Puniſhment of ſuch Offenders therein, their Aiders and Abettors; and for the providing Satisfaction for the Damages the reſpective Proprietors thereof ſhall ſuſtain thereby, Be it Enacted by the King's moſt Excellent Majeſty, by and with the Advice and Conſent of the Lords Spiritual and Temporal, and Commons in this preſent Parliament aſſembled, and by the Authority of the ſame, That if any Perſon or Perſons whatſoever, from and after the Twenty fourth Day of *June*, which ſhall be in the Year of Our Lord, One thouſand ſeven hundred and twenty, ſhall, either by Day or by Night, cut, take, deſtroy, break, throw down, bark, pluck up, burn, deface, ſpoil, or carry away any Wood-Springs, or Springs of Wood, Trees, Poles, Wood, Tops of Trees, Underwoods, or Coppice-Woods, Thorns, or Quickſets, without the Conſent o the Owner or Owners of ſuch Woods, Wood-Grounds, Parks, Chaſes, or Coppices, Plantations, Timber-Trees, Fruit-Trees, or other Trees, Thorns, or Quickſets, or of the Perſon chiefly intruſted with the Care and Cuſtody thereof, or ſhall break open, throw down, level, or deſtroy any Hedges, Gates,

Poſts

oſts, Stiles, Railing, Walls, Fences, Dikes, Ditches, Banks, r other Incloſures of ſuch Woods, Wood-Grounds, Parks, haſes, or Coppices, Plantations, Timber-Trees, Fruit-Trees, r other Trees, Thorns, or Quickſets, ſuch Lords of Mannors, wners and Proprietors of the ſame, that is, are, ſhall, or ay be damaged thereby, ſhall have ſuch Remedy, and have d receive ſuch Satisfaction and Recompence of and from the nhabitants of the Pariſhes, Towns, Hamlets, Villages, or laces, joining on ſuch Wood-Springs, or Springs of Wood, ood Grounds, Parks, Chaſes, or Coppices, and recover ſuch amages againſt the Pariſh, Town, Hamlet, Vill, or Place, ariſhes, Towns, Hamlets, Villages, or Places aforeſaid, and n the ſame Manner and Form as for Dikes and Hedges overhrown by Perſons in the Night, or at another Seaſon when hey ſuppoſe not to be eſpied, as in and by the Act of Parliaent made in the Thirteenth Year of the Reign of King *Edvard* the Firſt, [Intituled, *Lords may approve againſt their eighbours Uſurpations of Commons, during the Eſtate of particuar Tenants*] is ſet forth and provided; unleſs the Party or arties ſo offending ſhall, by ſuch Pariſh, Town, Hamlet, ill, or Place, Pariſhes, Towns, Hamlets, Villages, or Plaes, be convicted of ſuch Offence within the Space of Six Months from the Committing ſuch Offence or Offences; Any Law or Conſtruction to the contrary in any wiſe notwithſtanding.

And be it further Enacted and Declared by the Authority foreſaid, That if any Perſon or Perſons, at any Time or Times, from and after the ſaid Twenty fourth Day of *June*, in a Riotous, Open, Tumultuous, or in a Secret and Clandeſtine manner, Forcibly or Wrongfully and Maliciouſly, and without the Conſent of the Proprietor, Wood-Reeve, Wood-Keeper, or Perſon chiefly intruſted with the Care, Overſight, and Cuſtody of ſuch Woods, Wood-Grounds, Parks, Chaſes, Coppices, or Plantations, ſhall cut down, deſtroy, break, bark, throw down, burn, take, deface, ſpoil, or carry away any Wood or Springs of Wood, Underwood, or Coppice-Wood, or ſhall in ſuch a Riotous, Forcible, Tumultuous, Secret, or Clandeſtine manner, as aforeſaid, Maliciouſly break open, throw down, level, or deſtroy any Hedges, Gates, Poſts, Stiles, Rails, Fences, Ditches, Banks, or Incloſures of ſuch Woods, Wood-Grounds, Coppices, Plantations, Timber-Trees, Fruit-Trees, or other Trees, Thorns or Quickſets, that then it ſhall and may be lawful to, and for any Two or more Juſtices of the Peace of the County, Riding, Diviſion, City, Town, Burrough, or Corporation, wherein any ſuch Offence or Offences ſhall be committed, or for the Juſtices in Open Seſſions, upon Complaint to them made by any Inhabitant of the aforeſaid Pariſh, Hamlet, Vill, or Place, or of the Owner of ſuch Tree or Trees, Woods, Wood-Grounds, Parks, Chaſes, Coppices, or Plantations, or of any other, to cauſe ſuch Offender or Offenders to be apprehended for the Treſpaſſes and Offences aforeſaid, or any of them, and to hear and finally determine and adjudge all and every the Offence and Offences aforeſaid: And if ſuch Juſtices ſhall convict any Perſon or Perſons of all or any the Treſpaſſes and Offences aforeſaid, then ſuch Juſtices, immediately after ſuch Conviction, ſhall and are hereby required to inflict all and every the ſame Penalties and Puniſhments in the ſaid Act of the Firſt Year of His Majeſty's Reign hereinbefore mentioned, as fully and largely, and in the ſame Manner, for all and every the Crimes and Offences herein before expreſſed, although not contained in the ſaid Act, as if the ſame were here again repeated and re-enacted.

Provided always, and be it Enacted by the Authority aforeſaid, That in caſe any Action or Actions, Suit or Suits, ſhall at any Time hereafter be brought, commenced, or proſecuted againſt any Perſon or Perſons for any Cauſe, Matter, or Thing, done in Purſuance of this Act, or the before recited Acts, that the Defendant or Defendants in ſuch Suit or Suits ſhall and may plead the General Iſſue, and thereupon give the Special Matter of his Defence in Evidence; and in caſe a Verdict paſſes therein for ſuch Defendant or Defendants, or the Plantiff becomes Nonſuit, or diſcontinues his Action, the Defendant or Defendants in ſuch Caſe ſhall have and recover treble Coſts, any Law or Cuſtom to the contrary thereof in any wiſe notwithſtanding.

AN APPENDIX

Shewing how to uſe the

FRUITS OF THE GARDEN.

Firſt, THIS neceſſarily depends upon the Fifth and Sixth *Chapters*, of Fruits and Herbs eatable.

Gather *Apples* and *Pears* when full ripe, eſpecially theſe for keeping, or for *Cyder* in a dry Day, clear, but not froſty, in large Baskets, lin'd with Straw Matts upon the three footed or ſtanding Ladders; at leaſt lay Straw under if you ſhake them, and ſuffer not too many at once thereon.

Gather *Apricocks*, *Peaches*, *Plums*, *Cherries*, with your Hands into clean Baskets, when full ripe, whether for eating green, preſerving in Sugar, *&c.* drying, or for *Vines*; as alſo *Currants*, *Barberries*, *Raſberries*, *Gooſberries*. The *Cucumbers* for pickling muſt be ſmall, *i. e.* or their Seeds grow firm; as *Gooſberries* for Baking, Boiling, Sauces.

Artichocks or they grow too hard, let theſe for pickling be tendereſt. Let the *Purſlain* for pickling be hard and old, lay it a Day or two in the Sun to mortifie; that which you eat green, muſt be tender. Eat *Beans* and *Peaſe* green, but do not ſlice down the *Beans*, nor break the *Peaſe* Stalks, elſe theſe left thereon cannot fill. You may cut off the *Beans* with a Knife; and for the *Peaſe*, hold with the one Hand, and pull with the other.

Aſparagus when tender, *i. e.* about three, four or five Inches high. *Lettice* when young, but its beſt cabbaged. *Succory*, *Endive*, *Sellery*, blanched. *Creſſes*, *Parſly*, *Chervil*, *Burnet*, when young and tender. *Sorrel*, *Spinage*, *Beets*, before they ſhoot for Seed; and ſo is *Arrage*, *Mary-gold*, *Bugloſs*, *Burrage*. *Shallot* and *Onions* when their Stalks wither, tho' *Shibols* are eaten green. *Leeks* any Time before they ſhoot to Seed *Collieflowers* when firm and white ere they ſpoil; and ſo *Cabbage* when hard. Sweet Herbs any Time, either green or dried, but gather them in their prime for drying.

Liquoriſh, no Diſh but Drink, ſee *Chap.* VI. *Sect.* 4. where you will alſo find the Seaſon of *Scorzonera*, *Beetrave*, *Carrot*, *Turneip*, *Skirret*, *Parſneip*, *Potatoes*, &c.

Secondly, Beſides what is ſaid above of planting and ſowing at *Spring*, *Summer* and *Harveſt*, for ſome has longer Continuance; as alſo of raiſing ſome earlier than naturally, by Means of hot Beds, and what I might ſay of retarding others by Tranſplantations, *&c.* There be Ways of preſerving them out of the Garden, *&c.*

Apples and *Pears* may be carried into the Conſervatory or Store-houſe, in the large Baſkets between two Men, which muſt be a cloſs, but cleanly and wholſome Room floored, lined and cieled with Boards and Shelves of the ſame Round; let them ſweat a little on the Floor, with clean Oat Straw under them; then dry and lay them *Apple* thick on the Shelves, opening the *North* Windows in fair, clear, windy Days, eſpecially at firſt, that it may dry up the ſuperfluous Moiſture; turn them ſometimes, and in Froſts cover them with Matts, and ſhut cloſs the Houſe; ſome of the Choiſe you may wrap in dry Papers ſingly, and often viſit, that you may remove any that begin to rot, for they quickly affect the reſt.

The Way of preſerving *Cherries*, *Plums*, &c. in *Wine*, *Cyder*, *Honey* or *Sugar* is eaſie; as alſo of drying them in the Oven.

And you may pickle *Barberries* in Vinega and Salt well dried, and Sugar; to eac Pound and a half Fruit, a Pound of Salt col again ¾ Pound Sugar beat to Powder; pu them by Layings in a well glazed Earth Po and when they have ſtood a whole Week we ſtopt, pour in a Mutchkin of Vinegar to eac Pound of Fruit: If you find the Sawces t ſharp, put as much Sugar as Salt.

Range *Cucumbers* the ſame Way, and ſtra Salt and Vinegar till they be all covered, an you may add a little *Dill* and *Sweet-Ba* Leaves for Odour, and cover them cloſs 4 Days unbroken; then pare when you ſerv them up.

For *Artichocks*, diſſolve two large Handfuls of great Salt (that is dried on the Fire i a Pan) in one Mutchkin of Vinegar, and thre of fair Water, mix them while the Salt is ye hot (but put not the Liquor on the Fire) boi the *Artichocks* till the Leaves come off eaſil and while the cleanſed Stools are yet warm you may have 3 *Nutmegs*, 3 Drop of *Cloves* 1½ Dram of *Mace*, ¼ Ounce *white Pepper* ½ Ounce of *Cinnamon* beat to fine Powder, an ſtrew upon them; then pack them in the Po with five or ſix Spoonfuls of the Liquor o each *Stratum*: When all potted, pour on th reſt of the Pickle, and ſtop cloſs.

To pickle them green, put to every Poun of cleanſed Stools an Ounce of Salt dried, an ¼ Ounce of Spices laſt nam'd, mixt in a Mo

tar

r; and having dawbed the Stools full of
oles, throw the Powder thereon when the
ot is full, melt as much Butter as cover them
ver two Inches, and when cold, cover cloſs
ith Leather.

To pickle *Beetraves*, boil and put them in
lazed Pots, with whole *Pepper*, and as
uch Vinegar as cover all over, ſtopping them
loſs.

Aſparagus may be parboil'd and pickled as
rtichocks; and ſo may green *Peaſe* with
ods.

Purſlain as *Cucumbers*; and ſo may *Taragon*,
ampeir, *Broombuds*, &c.

Lettice, *Endive*, *Sellery*, &c. by blanching
d ranging among Sand in Cellars. *Cab-*
ge by hanging. Roots by houſing, ſand-
g, *&c.* as is ſhewed in *Chap.* VI. *Sect.* 2.
d 4. Sweet Herbs as well as Phyſical, by
anging to dry in ſome open Room, not in
e Sun, as ſome adviſe.

Put *Marygold* Flowers in Paper Bags near
e Chimney, till they paſs Hazard of Moul-
ineſs; do juſt ſo with true *Saffron*: But be-
uſe few knows how to order it, obſerve to
rt its Off-ſets, and plant with other Bulbs
half a Foot Diſtance in the Beds or Borders,
flowers in *September*, then be careful to go
rough in the Mornings, and gather the
affron, *viz.* the *Thrums* that are in the Middle
the Flowers, it bears not well till the 3d,

4th and 5th Year, then you muſt remove it But to the Matter in Hand.

Thirdly, As for the Uſe of theſe Fruits, th *Phyſicians* knows their Medicinals, the *Coo* their ordering in the Kitchen, the *Gard'ne* how to propagate and improve them. Fo Deſcription and medicinal Uſes, ſee our Countryman Doctor *Moriſon*'s Herbal; and fo mechanical Uſes, *Evelyn*'s Works.

To have Diſhes and Drinks of them, obſerve what follows.

Fourthly, Of Diſhes, as of *Apples*, yo may have baked without any Ingredients ſav Sugar, roſted alone, and ſo boiled, fryed b Shavers, with a little freſh Butter ſtew'd betwixt two Plates, having cleaved and take out their Cors, add a little ſweet Butter an Sugar. Of *Pears*, you may have roſted an boiled as *Apples*, alſo ſtoved, being cut in fou and put dry in a Stoup or Oven of white Iron and ſo ſet in the Pot among Water to boil you may have both *Apples* and *Pears* gree with Cheeſe.

Cherries are excellent baked, and ſo *Gooſberries*, *Apricocks*, *Peaches*, *Plums*, *Cherrie* *Currants*, *Gooſberries*, *Raſberries*, are all excellent Diſhes green or conſerved. *Strawberries* and red Wine or ſweet Cream.

Cucumbers pickled for Sallad to roſted Mutton; or (if ripe) ſlice and lay them an Hou in Salt, and ſo pour off their Water. *Arti*

chock

hocks are either pickled or freſh, boiled and eaten with ſweet beaten Butter.

Beans and *Peaſe* boiled with *Savory* and *Thyme-Fagot*, ſerved up with ſweet Butter beat among them, and ſet a little on a Coal or Chaffing-Diſh.

Boil *Aſparagus* in fair Water, and ſerve it up with a little ſweet Butter beat, *i. e.* tumbled in the Sawce-Pan above the Coal. The young Shoots of *Coleworts* will ſerve the ſame Way.

Purſlain may be eaten green with Sugar, and Vinegar or Oyl, ſtew'd with Meat, beſides the pickled.

Lettice, green as *Purſlain*; and ſo *Creſſes*, *Chervil*, *Burnet*, *Burrage-Flowers* and *Wood-Sorrel*.

Spinage is excellent Stoves, being boiled with Lamb or Veal, with a little *Sorrel* therein; as alſo chopped Diſhes thereof with Butter.

The ſame Way uſe *Beets*, alſo make green Broth of them with *Leeks*, *Fagot* of *Thyme* and *Parſly*. In ſome Stoves and Broths you may put *Arag*, *Marygold* Leaves, *Violet* Leaves, *Strawberry* Leaves, *Bugloſs*, *Burrage* and *Endive*. In Pottage put Juice of *Sorrel*, *Fagot* of *Thyme* and *Parſly*, and in moſt of Broths.

In the Sawce or Gravy of Roſt-Mutton and Capon, and in all ſtewed Diſhes, bruiſe *Shalot*, or rub the Diſhes therewith.

You may ſtove *Leeks* with a Cock. *Onions* may be baked with a little Butter if you want

Meat; alſo make uſe of them with Roſt-Meat, eſpecially Geeſe, and to moſt freſh Fiſhes in which *Parſly* and *Thyme-Fagot* is mainly uſed.

Boil *Collieflowers* in Water mixt with a littl Milk, then pour it off and mix them in th Stew Pan, with ſweet Butter ſeaſoned with Salt, and ſo ſerve them up about boil'd Mutton.

Boil *Cabbage* with Beef, reſerving the Top of the Pot to pour on (when diſhed up) abou the Beef.

Boil *Scorzonera*, peel off its brown Rind wherein conſiſts its Bitterneſs, ſlice and fry i with Butter.

When *Skirrets* are boil'd and peel'd, rol them in Flower, and fry them with Butter.

Boil and peel *Parſneips*, chop and bruiſ them well, pour on Butter, and ſet them o a Coal, and if you pleaſe ſtrew a little *Cina mon* upon them.

Carrots are ſo uſed, or only diſhed by Sha vers. *Beatrave* boil'd, peeled, ſhaved; and when cold, ſerved up with Vinegar and Su gar; beſides the pickled.

Beetraves, *Parſneips*, *Carrots*, are very goo ſerved up whole, or ſliced about Meat, as *Tur neips* uſually with fat Broth poured thereon.

Potatoes as *Parſneips*; or for Want of But ter take ſweet Milk.

Fifthly, Of Drinks, as of *Apples* to mak *Cyder*; I cannot name our *Cyder Apples*, fo I uſe to mix all the ripe at once in the Orchard

tha

that is, of a fine Juice, and eaſie to ſeparate from the Fleſh, and *Pears* that have Plenty of Juice, and hard Fleſh though harſh.

In *France* they extol the *Rennet Cyder*, in *England* the *Hereford Redſtrake* (which in *France* they ſet at naught) they ſpeak of *Genetmoil* and *Muſts*, ſome *Pippens* and *Parmains*. And for *Perry* the *Broomsbury* and *Ruddy-Horſe-Pear*: But now the different Soils begets Alterations in Fruits, beſides the Climate; yet both Defects may be a little helped, the Firſt by uſing all Diligence to prepare the Ground throughly, as is directed in *Chap.* II. Fallowing is a moſt commendable Eſſay.

The Second by Graffing and Re-graffing upon early. Good Fence and Shelter round the Ground are very conducible.

To make this excellent *Wine*, provide Trough and Beaters, preſs and harbag, Lagallon and Tapering-Fat, Barrels and Hogſheads, (for even by the common Screw-Preſs I have made a Hogſhead of *Cyder* in a Day) be ſure your Veſſels be ſweet, elſe you ſpoil all: *White Wine*, *Sack*-Cask, or ſuch as kept *Cyder* before. I have heard of *Cyder*-Casks 3 Inches thick in the Staves, which I believe is of great Advantage in preſerving the Liquor; but if any be tainted, put a little unſlacked Lime-Stone, and a little Water in the Barrel, and ſtop it cloſs; when ſtood a little While and jumbled, pour out and waſh clean, that will cure.

The Fruit being gathered ripe, as before, let them ly ten or twelve Days, if *Summer* Fruit; and near the Double of that Time, if *Winter* Sorts, (but the late ripe that gets Froſts is not good *Cyder*:) Mix not with unripe ones, neither ſuffer Leaves nor Stalks among them: When they are ſmall beat, put them in the Harbag within the Preſs-Fat, and ſo ſcrew them hard again and again; and empty it thereof, and put in more, and do as before; and empty the Receiver into the Tapering-Fat, and therein cover it cloſs with a Canvaſs till the Morrow at that Time, before you tun it; where the groſs Lee may fall to the Bottom, then draw it off at a Tap three Inches from the Bottom, leaving that Dreg behind, (the which may go among the Preſſings for *Water-Cyder*.) The clearer you tun it into the Barrels, the leſs it ferments, and that's beſt *Cyder*: For often *Cyder* ſpends its Strength to free it ſelf of the groſſer Parts; therefore, while your *Cyder* ferments, leave the Vent-Pin looſe, but keep cloſs the Bung for preſerving the prodigal Waſte of its Spirit, and aſſoon as the Working begins to allay, drive the Vent-Pin dead to; and this will be perhaps in a Fortnight, if it begins to work immediately, ſometimes not till the *Spring*: But keep faſt the Pin till it begins to work; and that you mind to bottle of it, do aſſoon as fully clear and fine, which is ordinarly at *Spring*. Put a *Plum* great of fine white Loaf-Sugar in each Bottle,

Bottle; and above all, make your Corks faſt and cloſs, then ſet them in the Cellar amongſt Sand.

To make the *Water-Cyder*, put ⅓ as much *Water* as you had *Cyder* upon the new preſſed Marce, to ſtand covered in Tubs four or five Days; then preſs them, and boil the Liquor, ſcumming it till the Scum ceaſe to riſe faſt, hen take it off (for too much boiling waſteth ts Spirits) and put in Tubs or Coolers, and when cold tun it up; when done Working, (which will not be ſo violent as beſt *Cyder*) nake the Pin faſt, and in a ſhort Time its for rinking. A little *Ginger*, *Cloves*, *Juniper-Berries*, or ſuch may be boil'd in it, if they leaſe your Taſte.

The making of *Perry* differs not from that f *Cyder*.

To make *Cherry Wine*, to every Pound of ipe Fruit ſtampt, put a Chopin of Spring Water, and ¼ Pound of fine white Sugar, boil he Water and Sugar, ſcum it, and put in the uice of your *Cherries*, let it boil up again, ake it off the Fire, run it through a Hair-ſive, nd when its throughly cold, put it in a Stone-ot, and after ſix or ſeven Days, draw it in-o Bottles, putting a Bit Loaf-Sugar in each; n a Quarter of a Year you may fall a drinking, will keep a Year; if you would have it ſtron-er, then uſe no more Water than Sugar.

After the ſame Manner you may make *ine* of *Raſps*, *Currants*, *Gooſberries*; Or, Take *Currants* very ripe, bruiſe and ſtrain them, and to every Pint of the Juice put a Pound and ¾ of Sugar into a Stone or Earthen-Pot, ſcum it often, and at a Weeks End draw it off, and take out the Settlings, and put in the Liquor again; do this till it be fine, then bottle it; and at a Weeks End, if it be not fine in the Bottles, ſhift it into other Bottles.

Gather your *Gooſberries* ere they be too ripe, and for every three Pound ſtampt Fruit, a Chopin of Water, and a Pound of Sugar; ſteep them 24 Hours, then ſtrain them, put the Liquor into a Veſſel cloſs ſtopt a Fortnight or three Weeks, then draw it off, if you find it fine, otherwiſe ſuffer it longer; and if not fine, yet rak it.

'Tis uſual to make it thus unboil'd, becauſe it contracts a brown Colour in boiling.

To every Pint of *Raſps*, a Pound of Sugar, let them ſtand two Days in an Earthen-Pot, often ſtirring and bruiſing them; then put them in a woollen Bag to hang up 24 Hours, and more, till the Liquor drop out into a Stone-Pot, ſuffer it there till fermented and ſcum'd, and at a Weeks End (or ſooner if fine) bottle it, and at another Weeks End ſhift it into freſh Bottles, that you may leave the Settlings behind; thus ſhift them ſo long as you ſee any Settlement, the which you may put in a Bottle by it ſelf.

Of ſome Sorts of *Plums*, as *Damaſons*, &c. may be made *Wine*.

That called *Cherry-Brandy*, is a Bottle half full of *Geens*, fill'd up with Brandy, ſometimes jumbled a little, and in a Months Time is fit for drinking: Or if you put the like Quantity of *Gooſberries* inſtead of *Cherries*, that will make the Brandy very delicious.

Cherries beſt for Wine are *Blackheart*, *Morella.* I think the *Red-Geen* moſt excellent, [ſee *Chap.* III. *Sect.* 2.]

Of *Gooſberries* the *Great-Chryſtal*, and of *Currants* the *Great-Dutch Red*, alſo the *Red-Raſp.*

To have *Ale* of *Liquoriſh*, ſlice it very ſmall, and pour Water on it when at the Boil; then cover it cloſs till the Morrow, pour off this Wort, and on more hot Water, to ſtand as long to ſearch it throughly, add your Worts together, and boil with a little dry *Wormwood carduus benedictus*: But the greateſt Difficulty is to barm it when cold, as Wort of Malt; yet the ſtronger you make it, the eaſier it will take; or if you have the Conveniency of Settlings of good Wort of Malt to boil with it, that will facilitate the Work.

To have good *Metheglin*, take one Part of clarified Honey, and eight Parts of pure Water, and boil well together in a Copper Veſſel till the Conſumption of the Half; but while it boils, take off the Scum, and when done boiling, and begins to cool, turn it up, and it will work of it ſelf; aſſoon as done working, ſtop it very cloſs. Some adviſes to bury it under Ground three Months, and that to make it loſe both Smell and Taſte of Honey and Wax, and taſte very like Wine. I uſe to add dry *Roſemary* and ſweet *Marjoram* in boiling: Some barm it as Ale, which I have practiſed effectually.

Sixthly, To know what Fruits and Herbs to make Choiſe of for our Plantations.

The *French* Fruit ſucceeds not well with us, in *England* are good *Apples*, but *Holland* for Stone-Fruit, eſpecially *Peaches* and *Cherries*, and *Scotland* for *Pears*.

The beſt *Apple* for the Table, is the *Golden Peppin*; we have alſo *Rennets*, *Ruſſets*, &c. very good. And for the Kitchen the *Codling*, *Lidingtoun* and *Rubies*, with Hundreds for both.

But the beſt *Pears* for the Table are *Engliſh Bergamot*, *Swan-Egg*, excellent *Pears*, and *Red-Pear*, *Achans*, &c. The *Wardens* are good Keepers and Kitchen-Fruit, and multitudes more.

Of *Cherries*, the *Kentiſh* and *Morella*, &c.

Of *Plums*, *Primordials*, *Muſſel*, *Imperial*, &c.

The common and *Orange Apricock*, the *Newingtoun* and *Nutmeg-Peaches*, (*Peaches* bears better with us than *Apricocks*.)

The *Portugal Quince*, and thin ſhell'd *Wallnut*.

Of *Gooſberries*, great *White*, great *Red*, and great *Yellow*.

Of *Currants*, the great *Red-Dutch*, early
ed, and the *White*.

Of *Raſps*, both the *White* and *Red*.

The great *Red-Strawberry*, and the *Virgi-*
an, which is more early.

Of *Artichocks*, both the great and the
ickly.

Great *White Beans*, and *White Kidneys*:
t *Peaſe*, *Barnees*, *Hotſpurs*, *Haſtings*, and
e *Sickle Peaſe*, &c.

If you can get *Hordeum Nudum*, that is, na-
d *Barley*, and ſow as I directed with *Peaſe*,
yields an incredible Increaſe.

The *Dutch Aſparagus* and *Cabbage-Lettice*.
he *Sorrel* that uſually ſhoots, not for Stoves,
c. And *Yellow Wood* and *French* for Sallads.
he *White Beet* and ſmooth *Spinage*. Curled
arſly and *Creſſes*, *Shallot* and *Roccumbol*, *French*
eeks, and *Strasburgh Onions*.

Candy Collie-flower, and our own great *Scots*
hite Cabbage.

Criſp Tanſie, and curled *Spearmint*, ſweet
nnel, and common *Roſemary*, ſweet *Marjo-*
m, and *Red Sage*.

The *Black Scorzonera* and *Orange Carrot*;
e ſmall round ſmooth *Turneip*; ſmooth *Dutch*
arſneip, and ſmall *Radiſh* clear as Chryſtal;
c *Chap*. VI. for more.

A

A Parallel between Plants *and* Animals *With an Attempt to prove the* Circulation *of the* Sap *in* Vegetables.

V*EGETATION*, in wha ever Degree, is equally d pending on the Order Nature, whether of *Tree* *Shrubs* or *Herbs*; their Prin ciples are equally the ſam that is to ſay, They all alik draw their Nouriſhment by Way of their *Root* which Nouriſhment is convey'd through pr per Veſſels into the *Stem*, the *Branches*, *Leave* *Flowers* and *Fruit*.

Now, that it may be more eaſily explain' by what Means every *Plant* receives and d ſtributes its Nouriſhment to the ſeveral Par of it, give me Leave to draw a Parallel b tween *Plants* and *Animals*, that thereby th Nature of *Plants* may be the better unde ſtood; I ſhall proceed to explain, That th *Sap* circulates in the Veſſels of *Plants*, as th *Blood* doth in the Bodies of *Animals*.

I think it proper, in this Place, to give ſhort Deſcription of the Veſſels of *Plants* an

the

eir Situation. *First* then, The *Root* of a
lant is of a ſpungy Nature, ready to admit
o it ſuch humid Particles as are fitted (in
e Earth, by a certain Temperature of Air)
be received into its Pores. And we may
ſerve, That the various Qualities of diffe-
nt *Plants*, depend chiefly on the different
ze of the Veſſels and Pores in their *Roots*,
which they receive their ſeveral Nouriſh-
ents.

Secondly, We muſt underſtand, that the
ood of every *Plant* is compoſed of Capillary
ubes, running parallel with each other, from
e *Root* (upright) through the *Trunk*; their
avities are ſo ſmall, that they are hardly to
diſcerned by the natural Eye, unleſs in a
ece of *Charcoal*, *Cane*, or *Oaken Board*:
heſe Veſſels renew and agument themſelves
ery Year, as we may obſerve by cutting a
ee horizontally, which will diſcover to us
e Latitudinal Shootings, and the annual Ad-
tions of theſe Pipes; and for which Reaſon
e *Trunks* of *Trees* increaſe in their Circum-
rence: Theſe Tubes, for Diſtinction Sake,
ay be called *Arterial Veſſels*: For it is
hrough theſe the *Sap* riſes from the *Root* in
e *Vapour*; for their Cavities are ſo ſmall,
at it would be impoſſible they ſhould admit
y Thing whoſe Parts were ſo large as thoſe
f a Liquor.

Thirdly, The Paſſages or Pipes by which
e *Sap* return downward, are much more
open

open than the former, and are capable of r ceiving a Liquor into them, theſe are plac immediately on the outſide of the *Arteri* *Veſſels*, between the Wood and inner Bar and lead down directly to the Covering of t *Root*: They perform the Office of Veins, an contain the *Liquid Sap* which is found in *Plan* in the *Spring* and *Summer* Months.

Fourthly, The Bark of a *Tree* is of a ſpung Texture, and by many little Strings whic paſs between the *Arterial Pipes*, correſpon with the Pith.

Fifthly, The Pith is compoſed of little tran parent Globs, chain'd together in like Mann with thoſe Bubbles which compoſe the Fro of any Liquor.

In fine, a *Plant* is like an *Alembick*, whic diſtills the Juices of the Earth: As for E ample, the *Root* having ſuck'd in the Salts o the Earth, and filled its ſelf with proper Juic for the Nouriſhment of the *Tree*; theſe Juic then are ſet in Motion by Heat, that is, the are made to evaporate into a *Steam*, as th Matter in a *Still* will do when it begins t warm: Now, aſſoon as this *Steam* or *Vapo* riſes from the *Root*, its own natural Qualit carries it upwards to meet the Air, it ente then the Mouths of the ſeveral *Arterial Veſſe* of the *Tree*, and paſſeth up them to the To with a Force anſwerable to the Heat that pu it in Motion; by this Means it opens (b little and little, as it can force its Way) th inute Veſſels which are rolled up in the *uds*, and explain themſelves by Degrees into eaves.

But as every Vapour of this Kind, when it els the cold, will condenſe and thicken into ater, ſo when the Vapour which I mention riſe through the *Arterial Veſſels*, arrives at e extream Parts of them, *i. e.* the *Buds* of *Tree*, it there meets with Cold enough to ndenſe it into a Liquor, as the Vapour in a ill is known to do.

In this Form it returns by Means of its own eight to the Root down the Veſſels, which the Office of Veins lying between the *Wood* d *inner Bark*, leaving as it paſſeth by, ſuch rts of its Juice, as the Texture of the *Bark* ill receive and requires for its Support.

It may be wondered at, that I have not taen more Notice of the *Pith*, which has been ways accounted the principal Part of a *Tree*, which I ſhall only anſwer, That many *Hercious Plants* have not any Pith: And that I ve ſeen the *Trunks* of large *Trees* deſtitute it, and they have yet continued to grow d to leave Fruit, ſo that the Order of *Vegetion* may be explained without it.

But to proceed, I ſhall only mention this xperiment, " Suppoſe a plain *Jeſſamine-Tree* ſpreading it ſelf into two or three *Branches* from one common *Stem* near the *Root*. Into any one of theſe *Branches*, in *Auguſt*, inoculate a *Bud* taken from a yellow ſtrip'd

“ *Jeſſamine*, where it is to abide all *Winte*
“ and in the *Summer*, when the *Tree* begi
“ to make its Shoots, you will find here an
“ there ſome *Leaves* ting'd with Yellow, eve
“ on the other *Branches* not inoculated, t
“ by Degrees, in ſucceeding Years, the who
“ *Tree*, even the very *Wood* of all the tende
“ *Branches*, will be moſt beautifully ſtrip
“ and dy'd with *Yellow* and *Green* intermix'
“ That tho' the inoculated *Bud* ſhould no
“ ſhoot out, or that it ſhould live but two
“ three Months, and after that happen to d
“ or be wounded by Accident, yet even
“ that little Time it will have communicate
“ its Virtue to the whole *Sap*, and the *Tr*
“ will become entirely ſtripp'd.

The Motion of the *Sap* continues in a *Pla* ſo long as the Sun's Warmth can keep it in fluid State, but is condenſed or thickned by *Winters* Cold, and is thereby changed in the Conſiſtency of *Gum*, and being thus ſtagnated, cannot move any more till the Warmt of the following *Spring*, or ſome artificial He rarifies it into its former liquid State.

It then renews its former Vigour, and puſhe forth *Leaves* and *Branches*, &c. but we mu not ſuppoſe it is only the melted *Sap* that wa thickned in the *Tree* during the *Winter*, whic does that Office of *Germination*, the *Root* ha not been idle, while the *Branches* have ſtoo ſtill, it has not loſt the Moiſture of the pr ceeding *Autumn* to impregnate and furniſh f with proper Salts or Nutriture, from hence the *Tree* is to be maintained; here is Supply laid in to furniſh Food for the *Sum-* *r*, as ſome induſtrious *Animals* lay up their ore to nouriſh themſelves in the *Winter*.

In the next Place, it may not be amiſs to nfute a common Opinion, *That the* Sap *re-* *rns to the* Root *in the* Winter; for if it did how comes it that *Trees* which are cut wn in *November* and *December* will put forth *anches* and *Leaves* the following *Spring*, al- o' they have no *Root* or Earth to feed them? his plainly ſhews, that the *Sap* is condenſed thickned in the *Tree* during its circulative ourſe by extream Cold, and remains in that *ummy* State till the Warmth of the *Spring* liifies it, and by the Vapour which then muſt iſe from it, the Buds are puſhed forth ſo ng, as there is Matter remaining in the *unk* ſufficient to furniſh them.

And ſince it appears from what has been d, That *Plants* have a Circulation of *Sap*, d proper Means whereby to ſupply themves with *Food*, let us conſider whether *Plants* their ſeveral Kinds do not require different inds of *Food* one from the other, like various rts of *Animals* which differ in their *Dyets*.

Firſt then, *Land Animals* may be liken'd general to thoſe *Plants* which are called *rrene*, for that they live only upon the *Earth*, ch as *Oaks*, *Beech*, *Elm*, &c.

Secondly, *Amphibious Animals*, ſuch as t *Ottar*, *Beaver*, *Tortoiſe*, *Froggs*, &c. whic live alſe well on the Land as in the Water may be compared to the *Willow*, *Alder*, *Minth* and ſuch others.

Thirdly, The *Fiſh Kind*, or *Aquatick Rac* whether of the *Rivers*, or the *Sea*, are analogous to the *Water Plants*, ſuch as *Wat* *Lillies*, *Water Plantains*, &c. which only liv in *Rivers*, or *freſh Water*; or the *Fucus*, *C ral*, *Coraline*, &c. which are *Sea* or *Salt W ter* Plants; and not any one of thoſe will liv out of its proper Element.

But to remark yet further, that as the ſeveral *Land Animals* have their reſpective *D ets*, ſo have the *Terrene Plants* likewiſe the ſeveral *Soils* from whence they draw the Nouriſhment; as ſome *Animals* feed on *Fleſ* others on *Fiſh*, *Roots*, *Leaves*, *Grain* or *Fruits* ſo do we find that ſome *Plants* love *Clay*, others a *Loam*, *Sand* or *Gravel*, &c. Nor i this all we ought to obſerve, we muſt conſider likewiſe how beneficial to every *Plant*, i a right *Expoſure*, whether in a *Vale*, the Side or Tops of *Hills*, expoſed to the *South* or *Nort* *Winds*? Whether Inland or near the *Air* o the *Sea*; for it is a proper *Air* that keep a Plant in Health, and fits it to receive it Nouriſhment, and a certain Degree of *Warmt* peculiar to each Kind of Plant is likewiſe required, as before obſerved.

7 AP 66

THE
Gard'ners KALENDAR,

Kintbury

DIRECTING
What is to be done every Month,
IN THE
KITCHEN-GARDEN, FRUIT-GARDEN, and NURSERY,
AND HOW
To Manage FORREST-TREES and FLOWER-GARDEN:
WITH
A CATALOGUE of ſuch **Diſhes** and **Drinks** as a COMPLEAT GARDEN can afford in their *Seaſons*.

Publiſh'd for the Climate of *Scotland*,
By *JOHN REID* Gard'ner.

Corrected, with large Additions.

EDINBURGH,
Printed and Sold by *John Moncur*, at his Printing-Houſe oppoſite to the Head of *Forreſters* Wynd, *James Thomſon* Bookſeller at the Entry to the Parliament Cloſs, and by moſt Bookſellers in *Edinburgh* and *Glaſgow*. 1721.

BRITISH MUSEUM

* * *

TO THE READER.

IT *is hoped this little Tract, with the Additions, as it contains many Matters never before known here, may poſſibly tend to the* Improvement *of* Gardens, *and put ny curious Perſons upon further Diſcoveries, the Encreaſe of their Pleaſure and Profit. refore the following Rules are laid down in as in and eaſie a Method as poſſible, ſo that the neſt Capacity may underſtand them.*

he Deſign of this Kalendar, *is to remind the* d'ner *of the Buſineſs he is to do in every Month e Year, in the* Kitchen-Garden, Flower-Gar- , *Nurſery and Plantation of* Forreſt-Trees.

n every Month the Gard'ner *has an Account e Weather he may reaſonably expect, and it may vary in ſome Points from what is ſaid , yet generally it may be found to agree with Relation; and 'tis thought not unreaſonable, all Lovers of* Gardens *ſhould be a little ap- ed of it, ſeeing how much the Buſineſs of y Month depends upon it; for 'tis improper ſome Works in dry Weather, others in wet, others are impracticable in Froſt and Snow. the next Place, the Products of the Gar- are ſet down in ſuch a Manner, as will rea- inform us, what* Herbs, Roots, Fruits *and*

Flowers *are in Perfection at any Time* of *Year, which is of great Uſe to Families, where great Entertainments are to be made.*

There is one Thing ſo notorious, that it canno paſſed by unobſerved, and that is, the Indiſc tion which too many are guilty of when they w in Gardens, *in pulling of* Flowers *and* Fru *unskilfully, which proves oftentimes prejudic either in the Loſs of the Seed of a* good *Kind* Flower, *the Loſs of an Experiment perhaps, a Damage to the Tree the Fruit is torn fro And becauſe many Noblemen, Gentlemen, others who have fine* Gardens, *have oftenti complained of this Breach of good Manners their Acquaintances, without being capabl redreſſing the Grievance they lay under; ſure Body can reaſonably take this amiſs, ſince ev one muſt needs be ſenſible, this Inadvertance many Times deſtroyed a* valuable Plant, *and obliged the Owners of the* Garden.

READER,

AS in this little KALENDAR *you will when, ſo in my Book [Intituled,* Scots Gard'ner] *you will find how to form the Particulars.*

The Gard'ners *Year is a Circle, as their* Lab *is never at an End: Neverthe leſs, their* Term

* * *

N. B. That the *ADDITIONS* to KALENDAR are marked thus

November.

CONTRIVE or forecaſt where, and what you are to ſow and plant. Trench and fallow all your vacant Grounds. Prepare and mix Soils and Compoſts throughly. Miſs not Highway Earth, Clean-
gs of Streets. Make Compoſitions of Dungs,
ls and Lyme.

Lay bare Roots of Trees that need, and
ng ſuch as require it. Plant all *Fruit-Trees*,
reſt Trees, and *Shrubs* that loſe the Leaf,
prune ſuch. Plant *Cabbage*. Sow *Haſtings*
early *Peaſe* in warm Grounds, but truſt
to them.

Gather the Seeds of *Holly*, *Yew*, *Aſh*, &c.
dering them as in *Chap.* III. Furniſh your
urſeries with Stocks.

Shelter tender *Ever-green* Seedlings. Ho your *Cabbage*, *Carrots*, *Turneips*: And a Time ere hard Froſts, your *Skirrets*, *Potato* *Parſneips*, &c. Cover *Aſparagus*, *Artichock* as in the laſt Month. Sow *Bears-ears*, pla *Tulips*, &c. Shut the Conſervatory. Preſer your choiceſt Flowers. Sweep and cleanſe t Walks of Leaves, *&c.* Stop your *Bees* clo ſo that you leave breathing Vents.

☞ This Month is ſubject to viole Winds, froſty Nights, and great Rains, ta ing their Courſe by Turns, to the great Hu of our Gardens and Plantations: It is not nough to guard againſt the pinching Froſ or ſhelter many tender Plants from the co Rains which fall at this Seaſon; but we mu alſo be diligent to ſecure our *Fruit Trees*, a ſuch *Forreſt-Trees* as have been lately plante with ſtrong Stakes, leſt they are blown dow or ſhaken by the boiſterous Winds now co ing from the *Weſt*; for nothing, in my O nion, contributes to deſtroy the Welfare of young Tree more, than to leave it unguard and expoſed to the Mercy of the Winds; t young Fibres lately formed are broken, a every Part thro' which the Sap ſhould ha its Paſſage to the Head, is bruiſed and wou ded, ſo that for Want of free Paſſage for t Sap, the Top is not half ſupplied, and t Whole languiſhes.

Now make Hot-Beds for *Aſparagus*, have ſome in *December*; and if we are n

provid

Provided with Roots in our own Nurſery, we may take them from ſome old Plantation which is worn out. Set the Roots cloſs together, without trimming, taking Care that they do not come within two Inches of the Dung, and that the Buds are covered at leaſt four Inches thick with Earth.

'Tis now a very good Time to lay down Branches of the *Vine*, eſpecially ſuch as we would have Fruit upon the following Year, to to be ſet growing in Pots upon a Table at great Entertainments. The Branches for this Purpoſe muſt be Shoots of the ſame Year, and ſo drawn through the Hole at the Bottom of a Garden Pot, that when it is filled with Earth, there may be a reaſonable Number of Eyes or Buds above Ground: A ſtrong Branch perhaps may leave eight or nine Bunches of Grapes; and as the Bunch is ſmaller, in Proportion four or five.

Garden Diſhes and Drinks in Seaſon.

Cabbage, *Collieflower*, *Onions*, *Leeks*, *Shallot*, &c. Blanched *Sellery*, *Endive*, *Succory*, pickled *Aſparagus*, *Purſlain*, &c. Freſh *Parſneips*, *Skirrets*, *Potatoes*, *Carrots*, *Turneips*, *Beetrave*, *Scorzonera*, *Parſly* and *Fennel* Roots.

Apples, *Pears*, &c.

Cyder, *Perry*, Wine of *Cherries*, *Raſps*, *Currants*, *Goosberries*, *Liquoriſh*, *Honey*, &c.

December.

TRENCH and prepare Grounds. Gather together Compoſts: Plant Trees in Nurſeries, and ſow their Seeds that can endure it.

Gather *Fir*-Seed, *Holly*-Berries, *&c.* Take up *Liquoriſh.* Continue your Care in preſerving choice *Carnations*, *Anemonies* and *Ranunculuſes* from Rains and Froſts: And keep the *Green-Houſe* cloſs againſt the piercing Colds. Turn and refreſh your Fruit in a clear and ſerene Day. Sharpen and mend Tools. Gather *Oziers* and *Hazle*-Rods, and make Baskets in ſtormy Weather. Cover your Water Pipes with Leitter, leſt the Froſts do crack them. Feed weak Bees.

☞ This Month, commonly called the *Black Month*, is ſubject to every Sort of Weather which is fatal to Plants of a tender Nature; All *Vegetables* of our Climate ſeem now to ſleep. The Days are ſhort, and very little Warmth from the Sun, makes every curious Lover of Gardens wiſh for the *Spring*; tho' indeed

ndeed, 'tis now an ingenious Gardiner will hew his Skill, in helping Nature by Artifice, o produce ſuch Fruits and Herbs, as ſhe is ot capable of bringing forth without very xtraordinary Aſſiſtance.

Guard againſt the Violence of Froſts, which ommonly begin with great Severity to reign n this Month.

Prune Orchard Fruit-Trees, and take away uch Branches as make Confuſion, covering very conſiderable Wound with the following ixture.

Take of Bees Wax, Roſin and Tar, of each Pound, of Tallow half a Pound, melt and ix them together; and immediately after mputation, dip a Painting-Bruſh in this ixture, and cover the Wound with it.

In open Weather we may continue to ſow *eaſe* and *Beans* as formerly.

In froſty Weather bring into the Garden the eceſſary Manures for enriching the Ground.

Garden Diſhes and Drinks in Seaſon.

Coleworts, *Leeks*, &c. Houſe *Cabbage*, *Onions*, *Shallot*. Several dried ſweet Herbs. ouſed *Parſneips*, *Turneips*, *Skirrets*, *Carrots*, *otatoes*, *Beetrave*, *Scorzonera*, *Parſly*, *Creſſes* nd *Chervil*, *Fennel*-Roots. Pickled *Cucumbers*, *arberries*, *Artichocks*, *Aſparagus*, *Purſlain*, *llery* and *Endive* blanched &c.

Houſed *Apples*, *Pears*. Conſerved *Cherries*, *Plums*, *Peaches*, *Apricocks*, &c.

Wine of *Apples*, *Pears*, *Cherries*, *Liquoriſh*, *Honey*, &c.

January.

PREPARE the Ground, Soils and Manures. Fell Trees for Mechanical Uſes. Prun *Firs*; plant *Hawthorn*-Hedges, and all Trees and Shrubs that loſe the Leaf, Weathe open; alſo prune the mor hardy and old planted. Dung the Roots o Trees that need, draining exceſſive Moiſture gather Graffs ere they ſprout, and near th End graff; begin with the Stone-Fruits; ga ther *Holly*-Berries, *Fir*-Husks, *&c.* ſecur choice Plants as yet from cold and wet, al earth up ſuch as the Froſts uncovered.

Feed weak Bees, alſo you may remov them.

☞ This Month is commonly froſty, an if we have any great Snow in the Courſe o the whole Year, it is about this Time; and is obſervable, that the moſt piercing Cold reigns chiefly at this Seaſon: Therefore, whatever is nice and curious in our Gardens, muſt now be diligently looked after, eſpecially thoſe Plants which are in Hot-beds, by taking proper Means to defend them from the cold Air.

Some plant *Strawberries* upon a moderate Hot-bed, to make them bear Fruit betimes, but keep them not too tender; alſo plant *Mint* that it may not be wanting for Sallads in this Seaſon: Mind to make new Beds frequently of *Aſparagus* as you have uſe for it.

In open Weather continue to trench Ground, laying it in Ridges till you uſe it.

Now alſo is a proper Time to compoſe Earth by mixing ſeveral Soils together of different Qualities.

Uncover the Roots of Trees that are too luxuriant; cutting off ſome of their large Roots, as well to curb their too great Vigour, as to prevent their too early bloſſoming.

If the Weather be open, tranſplant all Sorts of *Timber-Trees*, having firſt prepared the Places for them.

In planting of Trees, have due Regard to the Manner of the Roots, that thoſe which naturally ſpread near the Surface be not planted too deep, but as near as may be, imitate Nature in this and all other Garden Work.

In planting Trees for Timber, always preſerve the leading or upright Shoots of the

Trees, pruning off the ſuperfluous Branches. Chuſe rather to plant ſmall Trees, than thoſe of a large Size, a few Years will reward your Wiſdom in ſo doing, for where Trees have ſtood long enough in one Soil to become large and ſtately, they are hardly to be reconciled to any other, whatever Diligence may be uſed.

Set Traps for *Vermine*, which are now very buſie about your young *Peaſe*, &c.

Plant *Cabbages*, *Turneips*, *Parſneips* and *Carrots* for Seed.

Garden Diſhes and Drinks in Seaſon.

C*Oleworts*, *Leeks*, &c. Dry ſweet Herbs. Houſed *Cabbage*, *Onions*, *Shallot*, *Parſneips*, *Skirrets*, *Potatoes*, *Carrots*, *Turneips*, *Beatrave*, *Scorzonera*: For Sallad, Tops of *Mint*, young *Creſſes*, *Muſtard*, *Radiſh*, young *Lettice*, *Onions*, *Sellery* and *Endive*, the Tops of *Burnet* and *Chervil*, *Parſly* and *Fennel* Roots in Broth.

Pickled *Artichocks*, *Beatraves*, &c. Houſed *Apples*, *Pears*, and other conſerved Fruits.

With *Cyder* and other Wines as before.

February.

PLANT any Trees or Shrubs that loſe the Leaf, alſo lay and circumpoſe ſuch for Increaſe, ſee *June*: Likewiſe ſow all your Seeds, Kyes, Kirnels, Nuts, Stones; alſo the Seeds of ſeveral Greens, as *Holly*, *Yew*, *Philyrea*, *Laurels*, &c. prune *Firs*, &c.

Continue to deſtroy *Vermine*.

Graffing is now in Seaſon, ſee the laſt Month.

Prune all Trees and Shrubs, except tender Greens; nail and dreſs them at the Wall: Cover the Roots of Trees laid bare the Fore-end of *Winter*, if any be: Plant *Hawthorn Hedges*, *Willows*, &c.

Plant *Liquoriſh*, *Potatoes*, *Peaſe*, *Beans*, *Cabbage*: Sow *Parſly*, *Beets*, *Spinage*, *Marygold*, and other hardy Pot-Herbs.

Let *Carnations* and ſuch ſheltered Flowers get Air in mild Weather; but keep cloſs the Green-Houſe.

Now you may remove *Bees*, and feed weak Stocks.

This Month hath been commonly reckoned the wetteſt in the whole Year: And it has been obſerved, we rarely have any laſting Froſts begin at this *S*eaſon; but have taken Notice, that when *January* has given us a good Share of Froſt and Snow, the Weather in this Month is commonly warm, pleaſant and Delightful, and if that happen, it is an admirable Time for Planting of Trees, either for Fruit Timber, or Ornament, if thoſe Works were not compleated in the *Autumn*.

Elm-Layers ſhould now be gathered from the Roots of large Trees, and planted in a Nurſery, and young Plantations provided of all ſorts of *Forreſt-Trees* and *Shrubs*, which are propagated from *Slips* or *Layers*.

Set *Acorns* of the *Oak*, *Cheſnuts* and *Walnuts*, and *Ilex*, and Sow *Bay Berries*, all which come up the firſt Year.

Sow the *Maſt* of *Aſh*, *Beech*, and ſuch other Timber-Trees as has been prepared a Year in Sand, for elſe they will be Two Years in the Ground; as alſo the Berries of the *Hawthorn*, *Yew*, *Holly*, &c.

What I here mention concerning the preparing of *Seeds* in *Sand*, is the common Practice: But I am informed by a good Author, that a certain Man ſowed *Holly* and *Yew Berries*, which were two Years old, and had not been prepared that way, which came up the firſt Year without Difficulty: And he adds, that he gathered *Aſh-Keys* in the Spring, and ſowed them immediately, and they came up in like Manner; but this is nothing extraordinary, ſeeing that the *Aſh* will frequently hold its *Keys* two Years without letting them drop, and at that Age they are prepared of themſelves to grow without any Artifice.

Others ſay, That *Holly Berries* being gathered and laid in a Heap in the Houſe, without ſtirring them till the Spring, then thoſe which lie in the middle of the Heap, will not only be void of the Pulp or fleſhy Part, but begin to ſprout, and then being immediately ſown, will come up the ſame Seaſon. This may happen perhaps from the Ferment which the *Berries* would raiſe when they began to ſweat.

Prune and nail your *Wall-Trees*, eſpecially *Apricocks*, and all other *Stone-Fruit*.

Sow *Skirrets* in light Ground, where they may have ſome Moiſture. It is held by ſome, that when the Roots are about two Inches long, they ſhould be Tranſplanted, to make them large.

Plant *Garlick*, *Shallots*, and *Rocambole*, for Increaſe in light Ground.

Set *Potatoes* and *Jeruſalem Artichocks* in heavy Ground.

Tranſplant young *Cabbage Plants* for a Crop, if that Work was not done in the preceeding Month.

Sow *Aſparagus Seeds* in the natural Ground.

Towards the End, begin to graft in the Cleft, *Cherries*, *Pears*, and *Apples*.

Now make your Hot-Beds for *Melons* and *Cucumbers*, and continue to Sow every Ten Days, for fear of Danger from the Weather.

Melons or *Musk-Melons* are multiplyed by a Seed which is like that of a *Cucumber*, excepting in Colour, which in *Melons* is of pale Red, and is not broad as that of others; of the Culture of which we ſhall here preſent you with a moſt ample account, as it has been delivered by the honourable Mr. *John Evelyn.*

The moſt undegenerating Sort of *Melons*, are not large, but of a middling Size, the Rind thin, faintly embroidered, and without being ribbled or divided along the Sides, or at leaſt very obſcurely: Others there are which be whitiſh, ſome of Slate Colour, Red-fleſh, dry, yet melting in the Mouth, and not at all Mealy, but of an high Colour and generous Guſt. In a Word, they are the only Sort, (after Trials of many Hundred Kinds) I have Cultivated with Succeſs, and retain their good Qualities more then Twenty Years without any conſiderable Diminution.

Every Gard'ner, now a Days, knows how to raiſe *Melons*, but very few to govern them, the greateſt Difficulty whereof, is in the Gelding of Superfluities, to cauſe them to knit and lean as they ſhould do; in Order to which, obſerve theſe few Directions.

The firſt thing appearing (after the Seed is ſown, and the Plants prick'd out from the Hot-bed into a more temperate) are a pair

ſmall ſmooth Leaves, (which in *France*)
e call the Ears. A few Days after 'twixt
heſe, comes up a ſingle Leaf, which we call
e firſt Leaf, as being on the firſt Knot.
ext to this in the ſame Place, and ſoon after
here appears another which we term the
cond Knot: About the middle of whoſe
talk, there ſhoots out another Leaf called
e *Third-knot*, which *Third-knot*, is always
be prun'd off, but with Care, and without
ounding of the Stalk or Branch of the *Se-*
nd-knot, upon which that Third did grow;
being from this Place you will find that
ranch to ſprout, which we call the *Firſt-*
eader, and is that which will ſend out a firſt,
cond and third Knot; which Third (and
other ſuch Thirds) you muſt cut or pinch
f, as you did the other, without ſtaying for
Fourth, or Fifth, or more ſhoot out. It is, I
y, from theſe Knots and Joints, that other
anches in like manner will proceed, knit,
d form into excellent Fruit, provided the
oot and original Stem have been well nou-
ſhed in rich, warm, and proper Mould and
ell expoſed.

I muſt not forget, That from the middle,
ewiſe 'twixt the Ear, and Two firſt Leaves,
ere frequently riſes another Branch, which
u may abate or leave on, as you find it like-
to prove, eſpecially if a vigorous one, but the
eaf iſſuing from the middle of the Fourth
int, and ſeveral more beſides, ſucceſſively

ſpringing out of one another, as you ſee th Fourth from the Third (and as all the reſt I have mention'd) I purpoſely omit, and hav only figur'd, as ſuperfluous to the ingeniou Gard'ner.

When I Tranſplant from this Nurſery Bed (into the prepared Holes or Ridges, an open Melonire) I commonly place two Root together, unleſs I meet with an extraordinar good Plant, and then ſpare both the Branche which ſpring from each Side, 'twixt the Ea and Haft; as before is ſhewed: But when I plant to root near each other (as I do whe they are not very fair ones) I totally rejec both Branches, which ſhoot from the two oppoſite Ears, to avoid that Confuſion of thoſ ſupernumeraries which injure the principa Stem and Foot it ſelf.

Never ſuffer the Root, or Stalks of you *Melon*-Plants to touch the Dung, nor ſhoul you water them immoderately, but whe the Earth is very dry, and the Seaſon exceſſively hot, refreſh, and give the Roots Drink without deferring it till the Shoots complain when it may come too late, I water them i theſe periſhing Seaſons, Two or Three Times every Week: And in the Evenings when th Sun is ſetting, and then cover them with *Matraſſes*, from Eleven till Two a Clock; and i the Afternoon during the Sun's exceſſive Violence, which exhauſts and conſumes the Humidity, neceſſary to both Roots and Branches

I cover my *Meloniere* when it Rains, leſt too much Moiſture prejudge the Fruit, all which requires a great deal of Care, and no ſmall Pains though this regular Proceeding is to me a real Pleaſure.

When the Foot of your *Melon* Plant grows over Luxurious in Branches, cut away the Feebleſt of them, leaving not above Three or Four of the moſt vigorous, and whoſe Knots grow neareſt to one another: And when the *Melons* are knit, ſuffer not above Two upon each Foot, chooſing ſuch as are beſt placed, and neareſt to the main and principal Stem, which ſhould be thick, ſnug, and not too far above the Ground; of theſe are knit, and beginning to form, make choice of the handſomeſt, that are well truſſed, with a thick ſhort Tail, *Melons* with long ſtarts, ſlender and narrow Leaves, never prove worth any thing.

When you begin to cover with Bell's, raiſe them ſo upon little Forks, as they neither reſt upon the Fruit or Branches, or quite exclude the Air; but ſo as to keep the Edges from bruiſing, and preſſing the tender Stalk and intercepting the current Sap.

It now and then happens, That there riſes a ſecond Branch from between the Ears and two firſt Leaves (though I mention'd indeed but one) but this is very ſeldom; and you are ſtill to count them but for one Joint or Knot, though there will thence proceed a Second, Third, Fourth, and perhaps Twenty or Thirty more and futher remote, if you let them alone, and be not vigilant to reſtrain and ſtop his Exuberance in due Time. 'Tis true, they will preſent you with Fruit at the Extremities of their Branches, but 'tis little worth, as being ſo far diſtant from the Root, that the Sap ſpends it ſelf in the tedious Paſſage before it arrives, as you will find by the withered Branches and dryneſs of the Leaves, which ſhould skreen both Branches and Fruit till they are ripe, as we ſee they do, where a *Melon* has a ſhort and ſubſtantial Foot. A curious Gard'ner therefore ſhould viſit his *Meloniere* from Time to Time, and be cutting off all mutilated, ſtarted and vitious Branches which annoy the Plants; for theſe Impertinents will grow even to the view of ones Eye, and quite Impoveriſh the Fruit, if not timely prevented.

Thus you ſee I am careful to purge the Stem of all the ſmall, ſtraggling, and unprofitable Branches, from which there is no Expectation of good Fruit; whilſt obſerving thoſe that have well knit *Melons* on them at the Ends of the Branches, I conſtantly take away the reſt of that Branch on this ſide the Fruit, which devaricating into other uſeleſs Wanderings, would rob, and deprive the Fruit of the Nutriment derived from the Root; nevertheleſs with this Caution that in Pruning, I ſpare ſome leſs noxious Branches to ſhade the Fruit, that it be not left quite naked, and expoſed to ſuch a ſcorching

Heat as would hinder its Growth and Maturity, which within Forty Days from its Nativity, and Knitting into Fruit, arrives to full Perfection.

Great and *Pompion* like *Melons* are very ſeldom tolerably good; as arriving to their Bulk; either from the Nature of the *Seed* and *Kind*, or from ſuperfluous watering the ſmaller ones; wherefore (although as I ſaid they cannot ſupport the too exceſſive Heats,) the leſs Water you give your *Plants* (provided you find them not to want it) the better; and that rather a little at a Time than much: Once a Week is for the moſt Part ſufficient. As to this therefore you muſt determine and regulate your Refreſhments with great Circumſpection, and judge by the Nouriſhments which you conceive neceſſary to produce and maintain the Foot with its Branch and Leaf deriving from it, without which no Kind and genuine Fruit is to be expected.

When you would gather a ripe *Melon*, you will have Notice by its turning a little yellow; from that Time within a Day (as the Weather proves) it does ordinarly ripen, and begin to caſt a grateful Scent, this yellowneſs appearing in ſome Part of it or other, and not ſeldom with ſome Rifts or little Chaſms about the Stalk, *&c.* are moſt infallible Indications of its being left rather too long, than too haſtily gathered: The Gard'ner muſt therefore not fail of viſiting the *Meloniere* at the leaſt

Times a Day, *Morning*, *Noon*, and *Evening*, for this critical Time of Ripening. He will ſometime find *Melons* Ripen too faſt, but they are ſeldom or never good, as proceeding rather from a ſickly, or vitious Root, then from the Nature of the *Plant*, or ſpecies of theſe I cultivate.

After Twenty Four Hours keeping, or the next Day after it has been gathered (for ſo long contrary to vulgar Opinion, it ſhould be preſerved in ſome dry ſweet Place) and not eaten immediately as it comes from the Garden: A perfect and tranſcendent *Melon* will be full juicy, and without any Vacuity (which you will eaſily diſcern, by rapping a little with your Knuckles upon the out ſide of the Fruit) the Meat ſhould alſo be dry, or but a little red Meazing out of the Pulp, but by no means Watriſh and Flaſhy; to this add a *Vermilion* Colour, a grateful Flavour, and an high and racy Taſt.

Laſtly, reſerve for *Seed*, That only which lyes towards the ſunny ſide of the *Melon*, which being immediately cleanſed from its Mucilage, with a dry Linning Cloath, reſerve in Boxes, or Papers, in ſome temperate and ſweet Place.

Garden Diſhes and Drinks in Seaſon.

COle, *Leeks*, *ſweet Herbs*. *Onions*, *Shallots*, *houſed Cabbage*, *Skirrets*, *Turneips*, *Parſneips*, *Potatoes*, *Beetrave*, *Scorzonera*, *Carrots*, beſides *Parſly* and *Fennel Roots*. *Pick-*

Pickled *Beet-rave*, *Artichock*, *Cucumbers*, Water *Creſſes*, and blanched *Dandillions*. Houſed *Apples*, *Pears*, and other conſerved *Fruits*, with *Cyder* and other *Wines* and *Drinks* as before.

March.

REdelve, mix, and rake your Ground for immediate Uſe, Delve about the Roots of all your *Trees*. Yet plant *Trees* and rather *Greens*. Alſo prune ſuch, except the *Roſineous*. Propagate by Laying, Circumpoſition, and eſpecially by Cuttings. Sow the *Seeds* of moſt *Trees* and *hardy Greens*. Cover theſe *Trees* whoſe Roots ly bare, and Delve down the Dungs that ly about your young *Trees* all Winter, covering on Leitter again topt with Earth to prevent Drought in Summer: This is a material Obſervation and more eſpecially for ſuch as are late planted. Slit the Bark of ill thriving *Trees*. Fell ſuch as grow crooked in the Nurſery. Graffing is yet in Seaſon, (but too late for

Stone-Fruit) cut off the Heads of them Inoculated.

Set *Peaſe*, *Beans*, *Cabbage*, *Aſparagus*, *Liquoriſh*. Sow *Parſly*, *Beets*, *Endive*, *Succory*, *Bugloſs*, *Burrage*, *Sellery*, *Fennell*, *Marigold*, Plant *Shallot*, *Garlick*, *Potatoes*, *Skirrets*. Sow *Onions*, *Lettice*, *Creſſes*, *Parſneips*, *Beetrave*, *Radiſh*, &c. And on the Hot-bed, *Collieflowers*, and if you pleaſe *Cucumbers*, &c.

Slip and ſet *Phyſick Herbs*, *Gelly-Flowers*, and other fibrous rooted Flowers. Be careful of the tender, the peircing Colds are now on Foot. Turn your Fruit in the Room, but open not yet the Windows.

Catch *Moles*, *Mice*, *Snails*, *Worms*, deſtroy *Frogs-Spawn*, &c.

Half open Paſſages for *Bees*; they begin to ſit, keep them cloſe Night and Morning: yet you may remove them.

☞ This Month affords us very little variety of *Herbs* for the Table, for now the Winter Stores are almoſt ſpent, and the Roots which have been hitherto uſeful, are hard and ſtringy; and beſides, an underſtanding Gard'ner muſt, at this Seaſon, new Crop his Ground with Herbs and Roots for the ſucceeding Months.

In *March* if your Ground be great, and the Number of Labourers proportionable, you ſhould have the Pleaſure with one Caſt of your Eye to ſee them *Digging*, *making up*, *Sowing*, *Planting*, *Hawing*, *Weeding*, *Grafting*, *Pruning*

ing, &c. For *in Fine*, before the Month be out the moſt Part of the Ground ſhould be taken up either with *Seeds* or *Plants*, which are to ſerve for Proviſion for the whole Year. All that which was before covered with Dung, ought to be diſcharged of its Coverings, which are now grown Noiſome, as ſoon as they ceaſe to be neceſſary, and every thing ought to breathe the free Air, which begins now to cheer both *Animals* and *Plants*; you ſhould, at this Time, have at leaſt ſomething to begin to gather, either of *Sallads* or *Radiſhes*, of the new Seaſon.

Garden Diſhes and Drinks in Seaſon.

BOth green and houſed *Herbs* and Roots: Alſo pickled, houſed, and conſerved *Fruits*; with their *Wines* as in the former Months.

April:

PLant *Holy-Hedges*, and *Hawthorn* too, if not too forward. Ply and ſheer *Hedges*. Nail and Prune *Wall-Trees*, *&c.* Sow and Plant *Firs*, and other Greens. Slip and ſet *Sage*, *Roſemary*, *Thyme*, *Rue*, *Savory*, and all other fibrous rooted *Herbs* and *Flowers*. Uncover and dreſs *Strawberries*. Plant *Artichocks*, ſlip them and delve their Plots. Set *Cabbage*, *Beans*, *Peaſe*, *Kidneys*. Sow *Aſparagus*, *Parſly*, *Beets*, and *Beet-Card*. Set *Garlick*, *Shallot*, *Potatoes*, *Skirrets Sorrel*. Sow *Onions*, *Leeks*, *Lettice*, *Creſſes*, *Radiſh*, *Orach*, *Scorzonera*, *Carvy*, *Fennel*, *&c*. And on the Hot-bed *Cucumbers*, *Collieflowers*, *Purſlain*, ſweet *Marjoram*, *Baſil*, *Summer-Savory*, *Tobacco*, &c.

Set *Strawberries*, *Violets*, *Gelly-Flowers*, *&c*. Alſo ſow the Seeds of *Gelly-Flowers*, *&c*. Sow all your annual *Flowers*, and *Rare-Plants*, ſome requiring the Hot-bed. Deſtroy *Moles*, *Mice*, *Worms*, *Snails*. Lay, Beat, and Roll *Gravel* and *Graſs*. Fall to your Mowing and Weeding.

Open the Doors of your *Bee-hives* now they hatch.

☞ The Weather is commonly unſettled in this Month, the Nights frequently froſty, and blighting Winds from the Eaſt are ſtill to be expected. The new Moon of this Month, which the *French* call the *Ruddy Moon*, is for the moſt Part attended with deſtructive and violent Winds, which endanger the tender Sprouts of Plants, and young knit Fruit; therefore Gard'ners ought to be careful how they yet expoſe any *Houſe Greens* or *Exotick Plants* to the open Air, or depend too much upon the fair Promiſe of a warm Day or two.

If the Weather be dry and windy, ſtake up all new planted *Trees*, if that Work was neglected in the preceeding Month, watering them well once in ten Days, and fence your ſpired Seedling *Onions* from the Winds, for they are eaſily broken.

It is now that our Gardens begin to be overrun with *Snails* and *Slugs* to the great deſtruction of our young knit *Wall-Fruit* and the Greens of the *Kitchen-Garden*. Many ways have been preſcribed to remedy this Evil, as to lay *Tobacco-Duſt*, *Soot*, *Saw-Duſt* or *Barley-Chaff* round about the Stems of *Plants*, which indeed will keep them off for a little Time, but the firſt Rain that falls, gives them full Liberty to paſs over theſe Fortifications, neither are we more ſucceſsful in putting *Tar* upon the Stems of *Trees*, for a few warm Days drys it up: But the moſt ingenious Contrivance to keep off theſe deſtructive Vermin that I have ever met with, I learn from a curious Gentleman of *Hartfordſhire*, which is ſo cheap and Eaſy, and ſo much to the Purpoſe, that I believe few lovers of Gardens will be without it.

He directs to wrap about the Stem of a *Tree*, two or three Rounds of Line or Rope made of *Horſe-Hair*, ſuch as are commonly uſed to hang Clothes upon; theſe are ſo full of Stubs and ſtraggling Points of the Hair, that neither a *Snail* or *Slug* can paſs over them, without wounding themſelves to Death; ſo that the Head of the Tree, if it be a *Standar* or *Dwarf*, can receive no Harm from them if we ſecure a *Wall-Tree*, we muſt yet uſe little more Caution; for beſides preventin their Paſſage up the Stem of the *Tree*, w muſt faſten one of theſe Ropes cloſe to th Wall, ſo as to incloſe all the Branches of th *Tree* and allow ſpace enough to nail up th ſummer Shoots within the Compaſs of th *Hair-Line.*

In *Eſpaliers* of *Fruit-Trees*, it is only neceſſary to wrap theſe *Hair-Lines* about the Stem of *Trees* near the Roots, and about the Bottom of every Stake, which Work ſhould be done in the Winter when the *Snails* are laid up i their cloſe Quarters.

To preſerve *Collieflower-Plants*, or othe tender *Herbs*, which are lyable to be deſtroyed by *Slugs* or *Snails*, the *Hair-Lines* may b faſtened about the Edges of the Beds they ar planted in. It is to be remarked, that theſ Lines are left for this Uſe, when the *Hai* they are made of is very ſhort, for then the will be full of Points, and compleatly arme againſt any Attempts of theſe Murderin Vermine.

The Ground is now in good Order to receive the Seeds of *Thyme*, and ſuch Aromatick Herbs; and this Work ſhould not b delayed longer than the laſt Week in thi Month. *Note*, All ſmall Seeds muſt be ſown ſhallow in the Earth, and the larger Seeds

deeper

eeper in Proportion, and again, as the round is more light and ſandy, every ſort uſt be ſown deeper than in heavy Soils.

We may continue to make Plantations of *rawberries* till the middle of the Month, acing the Plants about eight or ten Inches part.

If the Weather be moiſt, it is not too late make Layers of *Jeſſamine*, *Honey-ſuckle*, *Roſ-* , and ſuch like Shrubs.

Sow *Sellery* upon the natural Ground, or pon ſome decayed Hotbed, to ſucceed that wn in *March*.

Sow now *Spaniſh Chardones* in the natural round for a ſecond Crop, make Holes for the eds about five or ſix Foot Diſtance; put four five Seeds in each Hole, and when they are me up, leave only one ſtrong Plant growing a Hole for Blanching.

Make Ridges for *Cucumbers* and *Melons* for full Crop, and Prune off the ſuperfluous anches from the *Melon Plants* upon the for- rd Ridge: But do this carefully, without ing up the Runners from the Ground; for leaſt Diſturbance of that Kind is apt to uiſe the tender Branches, which often ends the Loſs of the whole Plant.

Water well your *Strawberries*, while they in Bloſſom, two or three Times a Week, he Weather be dry, this muſt be done in Morning.

Garden

Garden Diſhes and Drinks in Seaſon.

O*Nions*, *Leeks*, *Coleworts*, *Beets*, *Parſly*, an other Herbs: *Spinage Sorrel*, *Scorzonera* green *Aſparagus*, *Lettice*, *Radiſhes*, and othe Sallads *Creſſes*, Pickled *Artichocks*, *Beetrave* *Barberries*, *Cucumbers*.

Houſed *Apples* and *Pears*, conſerved *Cherries*, *Plums*, *Peaches*, *Apricocks*, *Goosberries* *Currants*: Alſo the Wines of *Apples*, *Pears* *Cherries*, *Liquoriſh*, *Honey*, &c.

* * *

May.

PULL up *Suckers*, and haw about the *Trees*: Rub off unneceſſary Buds: Sheer or cli Hedges: Prune tender Green (not the roſineous) bring for the houſed ones, refreſhing a trimming them: Plant all Sorts of medicin Herbs: Sow all ſweet ones which are tende

Gather *Snails*, *Worms*, catch *Moles*.

Sow *Lettice*, *Creſſes*, *Purſlain*, *Turneip* *Radiſh*, *Peaſe*, &c. continue weeding and watering.

Near the End, watch the *Bees* ready to ſwarm.

☞ Altho' in this Month the Seaſon is ſo far advanced, as to bring many Plants to their higheſt Perfection, and Nature ſeems to be dreſt in her Wedding Garment, the Garden is yet ſubject to many Hazards from froſty Nights, and cold Blaſts, which oftentimes happen in the firſt Fifteen Days; we have ſeveral Times Snow in this Month; and though Snows are in common at this Seaſon, yet the Showers which frequently fall towards the Beginning, are often mixed with Hail, which I account the moſt pernicious Off-ſpring of the Weather, with Reſpect to *Vegetables*, as their Leaves and young Fruit are then tender, and very ſubject to bruiſe by every little Accident of that Kind. It has been a Rule among the Gard'ners, about the Middle of this Month to expoſe, or bring abroad their Exotick Plants, and ſuch tender Shrubs as the Uncertainty of the Weather, in the preceeding Months, confined within Doors; and I have obſerved, we ſeldom have any Weather ſo unfavourable to Plants after the Fifteenth, as to do them any Prejudice.

If ill Weather, or other Accidents has prevented a Gardener from performing what is recommended for the Work of the laſt Month, let him delay no longer than the firſt Week in this; for now the Seaſon is ſo far advanced, that a Day loſt is equal to a Week in the three preceeding Months.

Now look to your *Melon* Ridges, as well thoſe made in *February*, as thoſe which were planted in the laſt Month, weeding them, and carefully pruning off the Water Branches, which are known by their Flatneſs and extraordinary Breadth; it is alſo adviſable to pinch off the Tops of ſuch Runners as have Fruit upon them, leaving three or four Joints always beyond the Fruit, and particularly taking Care that every Fruit be ſufficiently ſheltered with Leaves; for to expoſe them to the Sun while they are ſmall, ſpoils their Growth. It is ſuppoſed that a *Melon* is about Forty Days between the Time of its ſetting and ripening; and as it is preſcribed, that Fruit is to be ſhaded by the Leaves during the Time of its Growth, ſo when that is perfected, we cannot expoſe it too much to the Sun for ripening, if we would have it well taſted.

If the Seaſon be dry, rather float the Alleys between the *Melon* Ridges, then pour Water upon the Plants, or near the Stems; for the Uſe of watering is to feed the extream Fibres of the Roots, which are the only Parts of a Plant by which it receives its Nouriſhment; and theſe Fibres in *Melon* and *Cucumber* Plants always run as far as the Branches The Inconveniences which attend the wetting the Leaves or Stems of theſe Plants, are either that they rot or mould by the Wet lying long upon them, or elſe they are ſcalded, if the Sun ſhines hot.

The Water for this Uſe ſhould be as ſimple as poſſible, for, all Waters prepared with hot Dungs breed Inſects among the Plants, which often deſtroy them: Pond Water which lies expoſed to the Sun, I take to be the beſt; and even that ought to be given but in ſmall Quantities to a *Melon*, for much Wet ſpoils its Flavour, but *Cucumbers* are great Lovers of it.

The Beginning of this Month ſow *Cucumbers* in the natural Ground, about Ten or Twelve Seeds in each Hole, for fear of Diſappointments, but leave only four or five when they are come up; let the Earth be freſh and well work'd with a Spade, rather light than otherwiſe, for in ſtiff Soil the Fruit is apt to ſuffer by *Worms*: This Sowing will afford us Plenty of Fruit in *Auguſt*, as well for Pickling as to eat with Sallads; a Plantation of this Kind producing near twice as much Fruit as one of the ſame Quantity of Ground forced with Dungs.

Gather carefully the Neſts of *Caterpillars*, and other Inſects which annoy your Trees, and prune off all crumpled Leaves and Twigs, for they harbour the worſt of Vermine, although they are ſcarce viſible without the Help of *Microſcopes*; this Work is the more neceſſary, becauſe (as Mr. *Richard Bradley* informs us) every Inſect increaſes yearly about 00, and ſome of them many more; for Example,

ample, thoſe *Catterpillars* which feed upo the *Cabbage*, and change into the commo white *Butter-flies*, breed twice every Yea each of them laying near 400 Eggs at o Time; ſo that from the ſecond Brood of o ſingle *Caterpillar*, we may reaſonably expe 160000.

Garden Diſhes and Drinks in Seaſon.

C*Oleworts*, and other Herbs, (being eate with Contentment is better than a fatte Ox without it) *Sage* (with Butter) *Leek* *Parſly*, *Thyme*, *Marjoram*, *Sorrel*, *Spinage*, & *Scorzonera*, *Aſparagus*, *Lettice*, *Purſlain*, an other Sallads and Pot-Herbs.

Pickled *Artichocks*, *Barberries*, *Beatrav* *Cucumbers*; houſed *Apples* and *Pears* for man Uſes; early *Cherries*, *Strawberries*, near th End.

Cyder, *Metheglin*, *Liquoriſh Ale*, &c.

June.

CLEANSE, about the Roots of Trees, Suckers and Weeds; water their covered Bulks, eſpecially the new planted.

Fell the long ſmall ill-train'd *Forreſt-Trees* in the Nurſery within half a Foot f the Ground: Unbind Graffs: Prune all *all* and *Standard-Trees*: Towards the End ou may inoculate, and increaſe by Circum-oſition.

Gather *Elm* Seed, and ſow immediately.

Tranſplant *Collieflowers*, *Coleworts*, *Beets*, *eeks*, *Purſlain*, &c. in moiſt Weather; at aſt water firſt the Ground if dry.

Sow *Peaſe*, *Radiſh*, *Turneip*, *Lettice*, *Cher-il*, *Creſſes*, &c. Deſtroy *Snails*, *Worms*, &c.

Begin to lay *Carnations* or *Gellyflowers*; ade, ſupport and prune ſuch as will blow; ater Pots and thirſty Plants; weeding and owing is in Seaſon, and ſo is Diſtillation.

Bees now ſwarm, look diligently to them.

☞ The Method I have taken in the pr
ceeding Months, in giving a ſhort Accou
of the Weather, which may reaſonably b
expected every Month, was chiefly deſign
to ſtir up the Gardeners to a neceſſary Ca
of ſuch of their Plantations,as are the moſt ſu
ject to be injured by uncertain Seaſons: B
as in the foregoing Months, it was deſire
that we uſe our greateſt Skill and Diligence
guard againſt Froſts, ſo now we ought wi
the greateſt Application to uſe proper Metho
for defending our Plantations from the t
violent Scorchings of the Sun, and have
watchful Eye upon ſuch Plants eſpecially,
have been lately tranſplanted, and refreſh the
with moderate Waterings about their e
tream Fibres; for to give them Water t
near the Stem, does them little good: T
Work ought now to be done in the Evenin

Continue to mow Graſs Walks early in t
Morning, and after Rain; alſo to deſtr
Weeds as in the former Months.

It is now a proper Time to clip Edgin
of *Box*, &c. eſpecially after Rain; but if t
Weather be dry, gather Herbs for drying,
lay up for *Winter*'s Uſe, ſuch as *Sage* of *V*
tue, *Mint*, *Carduus*, *Thyme*, *Lavendar*, &c.

Cut no *Aſparagus* after the firſt Week
this Month, for it will impoveriſh the Ro

The Seaſon is now very proper for buddi
or inoculating of *Peaches*, and other Sto
Fruits.

Gar

Garden Diſhes and Drinks in Seaſon.

C*olly-flowers*, *Beets*, *Parſly*, *Sorrel*, and other Pot-Herbs; *Purſlain*, *Lettice*, and other Salads; *Radiſh*, *Scorzonera*, *Aſparagus*; green *eaſe* and *Artichocks*; green *Goosberries*, ripe *herries*, *Raſps*, *Currants*, *Strawberries*.
Houſed *Apples* and *Pears*.
Cyder, *Metheglin*, &c.

July.

FALLOW Ground aſſoon as the Crop comes off: Prune and purge all *Standard-Trees*: Ply, nail, prune and dreſs your *Wall-Trees*: Pull up Suckers and Weeds: Haw and water here needful: Inoculate Fruit-Trees, Shrubs, ver-Greens, Flower-Trees; increaſe the ſame laying: Clip your Hedges after Rain: Suf- r ſuch Herbs and Flowers to run to Seed as u would ſave, cutting the reſt a handful om the Ground.

Sow *Turneip*, *Radiſh*, *Lettice*, *Onion*, *Collieflower*, *Cabbage* and *Coleworts* in the fu Moon: Near the End ſow *Beets*, *Spinage*, &c You may plant *Strawberries*, *Violets*, *Camomile*: Lay *Gellyflowers*, plant their Seedlings Slip and ſet *Hypaticas*, *Bearſears*, *Couſlips Helliboress*, &c. Take up *Bulbo* and *Tuberou* ones that are dry in their Stalks (if you min to change their Places) and keep till *September*, but ſome would be ſet immediately.

Supply Voids with potted Annuals: La Graſs and Gravel: Make *Cherry* and *Rasberr* Wine, *&c.*

Prevent the *Bees* latter Swarms; kill *Drons Waſps*, &c.

☞ We are now arrived at that happ Seaſon, which affords us almoſt every Variet the Garden can produce: If the Gard'ner ha been diligent in the preceeding Months, h now meets the Reward due to his Skill an Labour, we have little Rain at this Tim and the Weather very hot, therefore our greateſt Care muſt be to water carefully all nev planted Trees and Herbs, ſo as to nouriſh thei outward Fibres, as is before directed: Th Hours of general Watering in this Mont are from Five in the Morning till Eight; an from Five in the Afternoon till Eight or Nin in the Evening; but in particular Place which have the Benefit of ſome Wall or Hedg to ſhade the Sun from them, we may tak other Times of the Day, obſerving the Mo

tio

ion of the Sun, that his Beams do not reach hem till at leaſt two Hours after Watering; or the extream Heat of the Sun at this Time of the Year, would ſcald a new watered Plant, f we did not allow a ſufficient Time, for the Moiſture to ſink into the Ground before the Sun come upon it.

Truſt not too much to the ſudden Showers which may now fall, for they are of little Help to the Roots of Plants; neither neglect to water thoſe Plants which ſtand abroad in Pots or Boxes, for they have yet leſs Benefit from the Rains in this Seaſon, than the Plants in the open Ground.

Delay not to gather ſuch Seeds as are fully grown and coloured in their Husks, pulling up the whole Plants, and ſetting them upright in a Houſe, till the Seed-Pods are dry; for were we to wait till the Husks open before we gather them, great Part of the Seed would be loſt. This Way of gathering of Seed is commonly practiſed; the Moiſture in the Plants, and a little Sun, will perfect the Seeds, and they are ſubject to no Hazard from Birds or wet Weather.

Sow *Carrots*, *Turneips* and *Onions* to ſtand the *Winter*: Earth up *Sellery* in Drills, and plant out a new Parcel to ſucceed the former: Plant out what *Collieflowers* you have yet remaining, to bloſſom in the *Autumn*.

Guard againſt *Waſps* and other Inſects, which now devour your Fruit, by placing

Phials of Honey and Ale near your Fruit-Trees; and ſeveral other Ways you may ſoon catch a large Quantity of them; Once every Week renew the Bottles; and above all, take Care to bruiſe the Inſects you take out of them; for tho' they are ſeemingly dead, I have known a warm Day or two bring them to themſelves, therefore take Care how you throw them away.

There is no Time more proper to War againſt *Ants*, and other ſuch deſtructive Vermine than this Month; they are now all abroad, and may be taken.

Be careful to pick off all crumpled Leaves wherever you ſee them, and the very Twigs themſelves if they are curled, for they are the Beds of deſtructive Creatures.

I the more particularly recommend the Deſtruction of theſe devouring Vermine, becauſe of their wonderful Increaſe, eſpecially the ſmaller Kinds of them, ſuch as infect the *Collieflower*, whoſe Eggs are Five Hundred times (as Mr. *Richard Bradely* informs) leſs than the leaſt Grain of Sand, and many thouſands of them in Number lay'd from one ſingle Inſect; ſo that from a ſecond Generation of them, they are ſo numerous, that if every Egg which one might find upon a blighted *Collieflower*, was a Glob of an Inch Diameter, they would fill more Space than the whole Terreſtrial Globe: The wonderful Smallneſs of the Eggs of thoſe Creatures, I confeſs, may ſeem very

ery ſtrange to thoſe who are unacquainted vith the Uſe of *Microſcopes*; but this is no nore curious, than what the late famous Dr. *Hook* has taught us in his Works, where he nentions the Seeds of *Moſs*, which were ſo ſmall, that Ninety thouſand of them being aid together in a ſtraight Line, did not exceed the Length of a Barley-Corn; and that .382,400,000 of them, would weigh only a Grain.

About the 20th, ſow ſome *Collieflowers* to ſtand the *Winter*; for the right Seaſon for this Work is chiefly to be regarded, if we propoſe o have good Flowers early in the *Spring*, for ſowing them only a few Days ſooner or later, makes them either run before their Time, or come much latter and weaker than they ought to do: If the *Winter* be mild, and the Plants are ſet cloſs together, many will run up to Seed; and if ſharp Froſts, and a rough Seaſon begins in *November*, ſome of this ſowing will make good forward Plants; however, I adviſe to ſow again the firſt Week in the next Month; ſo that from theſe two Seminaries, it will be morally impoſſible to miſs of a Crop to our Mind.

Take up *Shallots*, *Garlick*, and gather *Recambole* when the Stalk turns yellow.

Garden Diſhes and Drinks in Seaſon.

BEETS, and many Pot-Herbs and ſweet Herbs. *Purſlain*, *Lettice*, *Endive*, &c.

Cabbage, *Collieflower*, *Scorzonera*, *Beetrave*, *Carrot*, *Radiſh*, *Turneip*, *Peaſe*, *Beans* and *Kidneys*; *Artichocks*, *Strawberries*, *Raſps*, *Currants*, *Goosberries*, *Cherries*, *Plums*, Summer *Pears* and *Apples*, *Cyder*, *Metheglin*, and other Wines.

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August.

FALLOW Borders, Beds, Nurſeries, and the Bulks of Trees; yet inoculate: Ply and purge Trees: Pull up Suckers and Weeds: Clip Hedges: Gather the *Black-Cherry* and *Morella* Stones: Gather *Mezerion-Berries*: Gather the Seeds of moſt Herbs and Flowers: Cut your Phyſick Herbs: In the Beginning ſow *Cabbage* (tho' I confeſs 'tis too late, ſee the laſt Month) *Beets* and *Beetcard*, *Spinage*, *Black Radiſh*, *Chervil*, *Lettice*, *Corn-Sallad*, *Endive*, *Scorzonera*, *Carvy*, *Marygold*, *Angelica*, *Scurvy-Graſs*, &c. Take up ripe *Onions*, *Garlick* and *Shallot*: Unbind Buds inoculated: Cut and ſtring *Strawberries*: Lay *Gellyflowers*: Sow

Columbines, *Holyhocks*, *Larkſ-heels*, *Candytuffs*, *Poppies*, and ſuch as can endure *Winter*.

Take up your *Bulbs*, and plant as in the laſt: Sift the Ground for *Tulips* and *Gladiolus*: Plunge in potted Annuals in Vacancies: Keep down Weeds by Hawing, *&c.* Lay Graſs and Gravel; beat, roll and mow well; make *Goosberry* and *Currant* Wines, &c.

Towards the End take *Bees*, take the lighteſt firſt; thoſe who are near Heaths may differ a little: Deſtroy *Waſps*, ſtraiten the Paſſage, by putting on the Hecks to ſecure from Robbers.

☞ The firſt Part of this Month, the Weather is comonly hot and dry, ſo that Watering is ſtill neceſſary, but at the latter End we are not without Danger of froſty Nights; and I have obſerved, that then alſo our firſt Rains begin.

We may water in the Evening till the Fifteen; and after that, if there is Occaſion, the Morning is to be preferred for that Work, for Fear of Froſt.

The firſt Week ſow a ſecond Crop of *Collieflowers* to ſtand the *Winter*, leaſt the Firſt ſhould run to Seed, which they will be apt to do, if we have an open Seaſon till *Chriſtmas*, or the Ground be light and lie in a Bottom.

Now break off the Stems of ſuch *Artichocks* as have done bowing.

Sow *Creſſes* to ſtand the *Winter*, they will highten the Taſte of thoſe Sallads which are gathered upon Hot-Beds in *December* and *January*, &c.

Give more Earth to your blenching *Sellery*, and continue to raiſe the Earth about it every Fortnight. Mind to gather what Seed you have ripe.

Yet continue to deſtroy Weeds, and ſuch Vermine as annoy the Trees.

Till the Tenth of this Month, we continue to ſow *Turneips* in the open Fields, for theſe Roots not only yield a profitable Crop, but very much enrich all light Soils.

Towards the End, ſlip and ſet all Aromatick Herbs, as *Savory*, *Thyme*, *Hyſop*, &c. and cut down thoſe which are run to Seed, within three or four Inches of the Ground.

Garden Diſhes and Drinks in Seaſon.

MANY Pot-Herbs and Sallads, *Cabbage*, *Collieflower*, *Beetcard*, *Turneip*, *Radiſh*, *Carrot*, *Beetrave*, *Scorzonera*, *Peaſe*, *Beans* and *Kidneys*, *Artichocks*, *Cucumbers*, *Apples*, *Pears* and *Plums* of ſeveral Kinds, *Apricocks*, *Geens*, *Goosberries*, *Currants*, *Raſps*, *Strawberries*. &c.

Cyder. *Metheglin*. *Cherry*-Wine. *Currant*-Wine. *Goosberry*-Wine. *Rasberry*-Wine. &c.

September.

FALLOW, trench and level Ground; prepare Pits and Borders for Trees; gather *Plane*-Seed, *Almond*, *Peach* and white *Plum* Stones; gather ripe Fruits; plant forth *Cabbage*; remove *Bulbs*, and plant them; refreſh, trim and houſe your tender Greens; refreſh and trim Pots and Caſes with *Gellyflowers*, and other fine Flowers and Plants, carrying them to Pits, ſhelter and cover, giving them Air, *&c.*

Towards the End gather *Saffron.*

Make *Cyder*, *Perry*, and other Wines, *&c.*

Straiten the Entrance to *Bee*-Hives, deſtroy *Waſps*, &c.

Alſo you may now remove *Bees.*

☞ In this Month the *Gard'ner* has great Variety of Buſineſs, and muſt imploy his Head as well as his Hands towards furniſhing his *Kitchen Garden* with every Thing neceſſary for *Winter* Uſe. The Showers, which are ſeldom wanting at this Seaſon, prepares Ground for the Reception of many Plants and

Seeds, and the great Heats alſo declining, give us now Opportunity of replanting many Things which would have been endangered by removing in the preceeding Month.

At the Beginning hough *Turneips* the firſt Time. If the Weather be dry gather ſuch Fruits as are now ripe upon the Trees, and ſuch others as are full grown, and in good Condition to be laid up in the Houſe, for the uſe of the following Months: *Pears* or *Apples*, as are fit to gather, will eaſily leave the Tree; therefore uſe no violence to pull them off, for ſuch as do not willingly part from the Tree will ſhrivel and have an inſipid taſte,

Gather ſuch ſmall Seeds as are now ripe, according to the former Directions: Gather the *Leek*-Seeds, if the Seeds are black, cutting the Heads from the Stems, and ſpread them upon a Sheet every Day in the Sun, till they are fit to be rooted out.

Gather the Pods of *Garden* and *Kidney Beans*, and expoſe them to the Sun for drying, to be laid up till the *Spring*, or the Time you would uſe them, and let them not be taken out of the Seed Pods till your Ground be ready for them, for the Pods preſerve the Seeds.

The *Cucumbers* which are now full ripe, muſt be cut open, and the Seeds and Pulp taken out of them, to remain together two or three Days before they are waſhed clean: The Seeds may then be kept in Water Twenty four Hours, and laid to dry in the Sun for Ten Days, be ſure all Seed are throughly dry before they are laid up, or they will rot.

We may yet Replant *Endive*, and all ſorts of fibrous rooted Herbs, continue to earth up *Sellery*, make Plantations of *Cabbages* and *Coleworts*, 'tis now a good Time to tranſplant *Strawberries.*

Tranſplant young *Collyflower* Plants, in Places where they are to flower under ſome warm Wall, or place for ſhelter, thoſe which are now planted out for good, will bloſſom above fifteen Days ſooner than thoſe which are planted in the *Spring*, and will produce much larger Flowers if they can be preſerved through the *Winter.*

Garden Diſhes and Drinks in Seaſon.

VArieties of Pot-Herbs and Sallads, *Cabbage, Collie-flower, Peaſe, Beans,* and *Kidnies, Artichocks, Beet-card, Beet-rave, Scorzonera, Carrots, Turneips, Radiſh, Cucumbers, Apples* and *Pears* of many Kinds, *Apricocks, Peaches, Nectarines, Quinces, Grapes, Barberries, Filberds.*

Cyder, Liquoriſh Ale, Metheglin, and Wine of *Cherries, Raſps, Gooſeberries, Currants,* &c.

* * *

Oct.

October.

GATHER *Winter* Fruits; trench and fallow Grounds (mixing with proper Soil) to ly over the *Winter*; prepare Dungs and Manures, mixing and laying them in Heaps bottom'd and covered with Earth; plant *Hawthorn*-Hedges, and all Trees that loſe their Leaves, alſo lay their Branches; prune *Roſes*; gather Seeds of *Hazle*, *Hawthorn*, *Plane*, *Aſh*, *Beach*, *Oak*, *Apple*, *Pear*, &c. cut *Strawberries*, *Artichocks*, *Aſparagus*, covering their Beds with Dung and Aſhes; earth up *Winter* Sallads, Herbs and Flowers a little; plant *Cabbage*, &c. plant *Tulips*, *Anemonies*, and other *Bulbs*; ſow the Seed of *Bearſears*, *Cowſlips*, *Tulips*, &c. beat and roll Gravel and Graſs; finiſh your laſt Weeding and Mowing; lay bare leopered Tree Roots, and remove what harms them; alſo delve and dung ſuch as require it; drain exceſſive Moiſture wherever it be; pickle and conſerve Fruits. Make *Perry* and *Cyder*.

You may now ſafely remove *Bees*.

☞ W

☞ We ought now to make uſe of every Opportunity, to compleat our Plantation of Herbs for *Winter* uſe: The greateſt part of this Month we may expect tolerable Weather, but after that, our chief Buſineſs will be, to ſecure, from the ſeverities of the Seaſon, all Plants which are in danger of being injured by the Froſts and high Winds.

Take up thoſe *Collie-Flower* Plants which begin to flower, tye their Leaves together, and bury their Roots and Stalks in Sand, in a Cellar or ſome cold Place, the Flowers will increaſe in Bigneſs, and remain good for ſome Months

Alſo cut *Artichokes* with long Stalks, and preſerve them in the Houſe, ſetting their Stalks in Sand.

'Tis now the Seaſon to lay up Roots for *Winter* Store, ſuch as *Carrots*, and *Parſneips*; and ſome Gardeners alſo think it beſt to take the Roots of *Turneips* out of the Ground, and lay them in Sand: But, I rather chooſe to leave the *Turneips* in the Ground, until we are ready to uſe them; and for the other two Kinds, I preſcribe the following Method: Make choiſe of a dry part in your Garden, and there dig a Trench about eight or ten Inches deep, into which (without Mixture of Earth or Sand) lay your Roots cloſe together, firſt cutting off their green Tops and growing Buds, and then cover them about ſix Inches thick with Wheat Straw ridgewiſe. We may this way preſerve them fit for Uſe till the following *June*.

'Tis now the beſt Time of the Year, for tranſplanting of Fruit-Trees, although their Fruit be upon them.

Tranſplant *Forreſt-Trees* of all ſorts from the Beginning to the End of this Month, the *Elm* eſpecially about the firſt Week, although its Leaves are then very green.

About the middle of this Month ſow the *Cyder-Preſſings* in Beds of freſh Earth, to raiſe Stocks for Graffing, or even making of *Orchards* without Graffing. From a Nurſery of this kind, we raiſe as many different Sorts of *Apples* as we raiſe Plants, altho' the Seed came all from the ſame Tree, ſo much is Nature pleaſed with Variety.

And it may be, was the Earth more conſtant and uniform in its Productions, its Vegetative Power would be too ſoon exhauſted; for I conceive were all *Apples* exactly the ſame, they would all draw this very ſame Nouriſhment from the Earth, and the like with every Tribe of Vegetables, but this Variety ſeems to determine, what I have often thought of, that there are as many diſtinct Qualities in the Earth, as there are different kinds of Plants growing upon it, and that each Plant can only take out of the Earth that Spirit which its Parts are naturally prepared to receive, and leave the others undiſturbed. If the Generation of Plants is allowed, (as the forementioned Mr. *Richard Bradly* explains in his firſt Part of his *New Improvements*) the vaſt Varieties in Plants ſeems to proceed from the coupling of one Plant with another; and that is, the *Farina Fæcundans* of one ſort being conveyed by the Air, and lodged upon the Female Parts in the Bloſſom of another Tree, changes the Properties in the Seed, which it impregnates, ſo as to make it produce a Tree differing in ſome Reſpects from the Mother Plant.

Now lay up ſome *Acorns* and the *Maſt* of other Timber Trees in dry Sand.

Towards the End, Earth up and dreſs *Artichokes*, and cover your *Aſparagus* Beds with long Dung, to preſerve them from the Severity of the *Winter*.

Garden Diſhes and Drinks in Seaſon.

Cole-worts, *Leeks*, *Cabbage*, *Collie-Flowers*, *Onions*, *Shallot*, *Beans*, blanched *Endive* and *Sellery*. Pickled *Aſparagus*, *Purſlain*, &c.

Scorzonera, *Beatrave*, *Carrots*, *Turneips*, *Parſneips*, *Potatoes*, *Skirrets*, *Artichocks*, *Cucumbers*, *Apples*, *Pears*, *Plumbs*, *Almond*, &c.

Cyder, *Perry*, and Wine of *Cherries*, *Currants*, *Gooſeberries*, *Rasberries*, Ale of *Liquoriſh*, *Metheglin*, &c.

* * *

APPENDIX

Concerning **Pot-Herbs**, *and ſuch as are commonly uſed for* STILLING.

THAT there may not be any thing omitted that is proper to be done in the *Kitchen Garden*, 'tis thought neceſſary to treat of ſuch *Plants* and *Herbs* as are commonly uſed for *Stilling*, and are ſometimes dry'd for the Uſe of the *Kitchin*; and firſt of ſuch as are *Aromaticks*.

Roſemary and *Lavender* are both durable *Plants* and *Ever-greens*; they love a light ſandy Soil, and are both raiſed from Slips planted in *April*; quickly taking Root if they are Shoots of the laſt Year, but will not grow if they are older: They are apt to ſuffer by the Froſt, eſpecially if they have too much Wet, and therefore ſhould be planted chiefly in the drieſt Parts of the *Garden*, where they may be the moſt expoſ'd to the Sun. *Lavender* makes a fine Edging in large Walks, if it be often clip'd; but for the ſake of its Flowers, which are often uſed, we muſt have a Plantation of it apart; for were the Edging Plants ſuffered to flower, their Beauty will be ſpoil'd.

Thyme and *Hyſſop* are either raiſed from Seeds ſown in *March* or *April*, or propagated from

Slips planted in theſe Months: We have many ſorts of *Thyme* of various Scents and Uſes; the *Pot Thyme*, *Lemon Thyme*, and a ſort with variegated Leaves are moſt commonly cultivated, and make very good Edgings that will laſt ſeven or eight Years: And beſide them the *Maſtick Thyme*, and the *Marum Syriacum* or *Cat Thyme*, are cultivated in many Gardens, for the ſake of their refreſhing Odour; but the latter, if it is in ſmall Quantities, muſt be carefully defended from the *Cats*, who love to eat it, and are intoxicated with it; but I obſerve, where it is in abundance the *Cats* never diſturb it. Theſe two laſt Kinds ſhould be planted in the warmeſt parts of the Garden, the others will grow any where.

Sage has many Varieties, but we propagate only three ſorts of it, *viz.* The *Red Sage*, the *Tea Sage*, or *Sage of Virtue*, and the *Wormwood Sage*; theſe Kinds are raiſed from Slips taken from the Roots about the beginning of *April*, and planted a Foot apart in light Earth. The *Sage* of *Virtue* ſhould be cut for drying, when it is full of young Shoots, for thoſe only are fit to make *Tea* of; they ſhould be gathered in a dry Day about Noon, and laid to dry in the Shade to be preſerv'd for Uſe. I have been often told, that the *Wormwood Sage* is preferable to the former, affording a pleaſanter Liquor, and more grateful to the Stomach.

We ſeldom meet with more than two ſorts of *Rhue* in our Gardens, and their difference only conſiſts in the Colours of their Leaves; the one being variegated with Cream Colour, and the other of a plain Green: This Plant delights in ſhady Places, and is eaſily multiply'd by Slips ſet in *April* in a light Soil. In times of Peſtilence this Plant has been much in requeſt, believing, it prevents Infection.

Mint, or *Menth*, and *Baum*, ſhould neither of them be wanting in a *Kitchin* Garden; they are propagated by parting their Roots any time in the *Spring*, and will grow any where. *Mint* indeed is more generally cultivated than the other, as it is of it ſelf a pleaſant Sallad, and good in Soops and ſome Sauces, beſides its extraordinary Uſe in *Stilling*: When it is about a Foot high, it ſhould be cut to dry in Bunches for *Winter* Uſe, obſerving this as a general Rule, to cut every Herb deſign'd for drying in a dry Day, and then to dry them in the Shade.

Some *Gardeners* think it worth their while to plant ſome large Roots of *Mint* in the Corners of their hot Beds about *November*, that they may have young Shoots of it to mix among their *Winter* Sallads.

Tanſie is increas'd by parting the Roots in the *Spring*, and is a Plant ſo valuable, that it muſt not be wanting; ſome of it ſhould always be kept dry in the *Winter*, eſpecially for the uſe of thoſe who are afflicted with the *Gout* in their Stomach: It is of that ſoveraign Efficacy in that Caſe, as I have found by Experience, that I think I ſhould be guilty of ill Nature,

if

f I was to paſs by this opportunity of making known the Method of uſing it. Boil half a andful of thisHerb in half aMutchkin of ſtrong Vhite-Wine, and drink this Decoction as ot as poſſible ; I have always found it to remove the Pain in leſs than a Quarter of an Hour.

Wormwood is either raiſed from Seeds or lips planted in *March*; it will grow in any oil, and be apt to over run the Ground, if it e eaten by Hogs when the Seeds are ripe, vhich paſſing through their Bodies germinate nd come up very quickly.

Penny royal and *Cammomile* are uſeful Herbs, nd very well deſerve Place in the Garden; hey delight in moiſt ſhady Places, and proſer beſt in a ſtiff Soil ; they are both propagaed from Slips planted in *March* or *April.*

We have two Kinds of *Marjoram* common propagated in Gardens; one ſort called the *inter Sweet Marjoram*, which will reſiſt our roſts, and remain good two or three Years ithout renewing, and the other is ſown nnually upon the hot Bed in *March*,not being ble to defend it ſelf from the Violence of our *inters*: The firſt Kind is increas'd by plantg the Slips about *March* or *April* in moiſt aces, but has not that agreeable Scent which e find in the other; therefore ſome of the ſt ſort ſhould be dry'd every Year when it is own pretty large.

Carduus is rais'd from Seeds ſown either the middle of *Auguſt*, or in *March*; but I commen the *Autumn* Plants before thoſe rais'd in th *Spring*, as they are much larger, and more vigorous than the others, and beſides have much better Seaſon to dry in.

Angelica is rais'd from Seeds ſown in *Marc* in a moſt rich Ground; it is a Plant that laſ good for ſeveral Years without renewing, an is of great Uſe.

Dragons ought alſo to be found in our Ga den, as well for the Beauty of the Flower as the uſe made of the whole Plant in many C ſes; it is multiply'd by tranſplanting the Su kers taken from about the Root in *March*: Th Plant loves a freſh natural Soil and Shade.

Fennel and *Dill* are both propagated ali from Seeds ſown in the *Spring*; they are uſef Herbs, and ſhould not be wanting in a Garde the firſt having its tender Stalks blanched li *Sellery* makes a very good Sallad.

Parſly and *Clary* are alſo very uſeful Furnitu of a *Kitchen Garden*, both cultivated with gr Facility, and raiſed from Seeds ſown in *Mar* and renewed every Year.

Theſe being all the *Plants* that are required grow in a *Kitchen Garden*, it's adviſed that th be planted in ſome place near the Houſe, for conveniency of gathering them with little tr ble when they are wanted.

ADVERTISEMENT.

THAT there is to be ſold at *JOHN WEIR*'s Gardner at riot's Hoſpital, and at *James Weir* Son to the ſaid *JOHN* Houſe at *Tolcroſs*, at the End of the *Weſt-Port*: All Sorts of Ga *Seeds*, Fruit and Barren *Trees*, and *Ever-Greens*, as alſo *Flow* the beſt Kinds.